

FIG. 1A

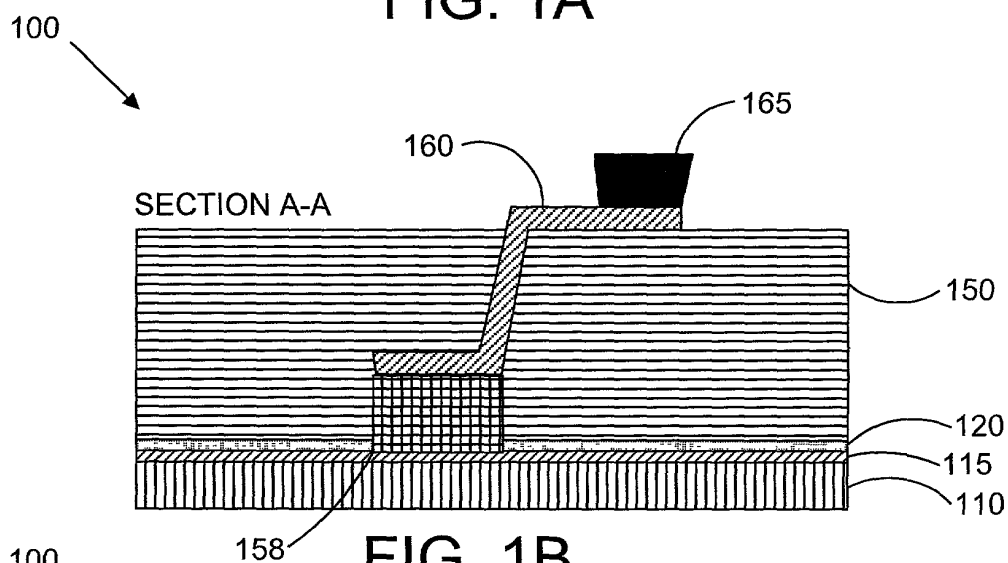


FIG. 1B

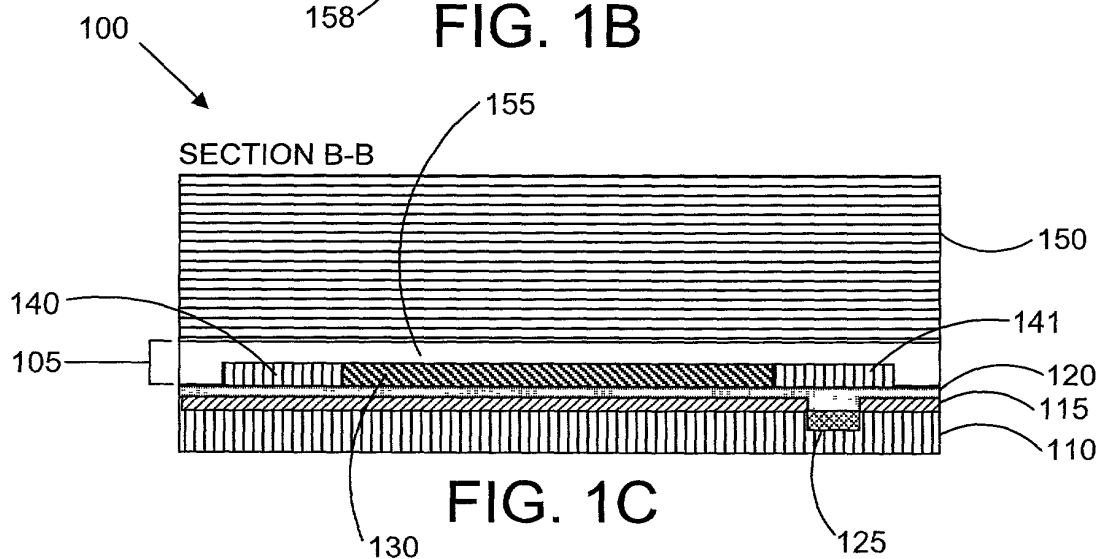


FIG. 1C

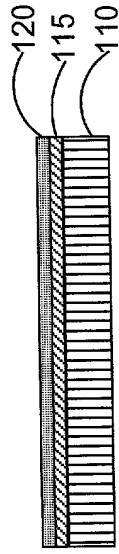


FIG. 2A

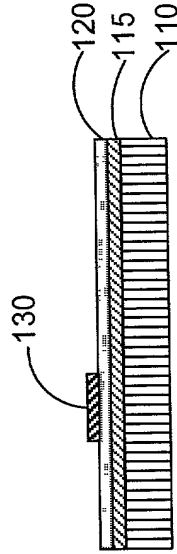


FIG. 2B

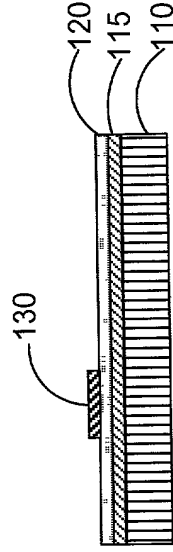


FIG. 2C

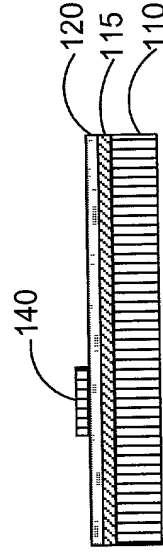


FIG. 2D

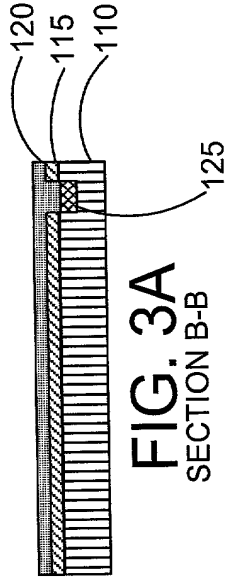


FIG. 3A
SECTION B-B

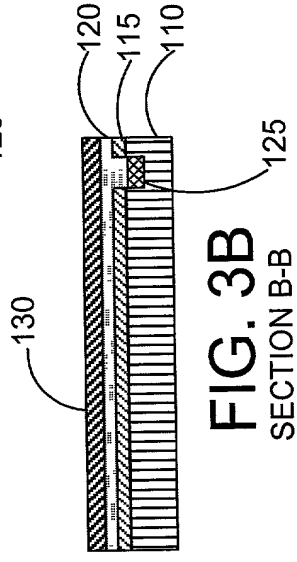


FIG. 3B
SECTION B-B

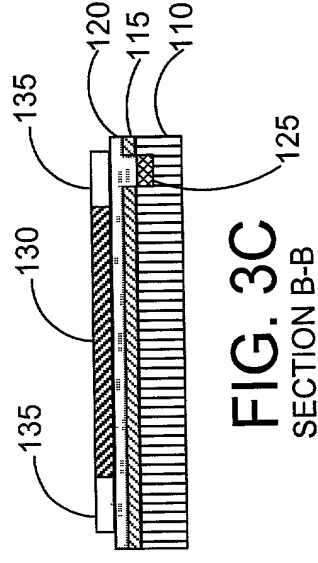


FIG. 3C
SECTION B-B

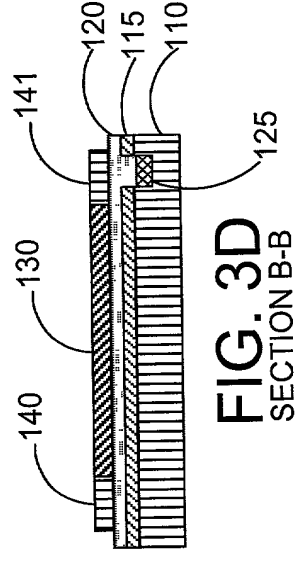


FIG. 3D
SECTION B-B

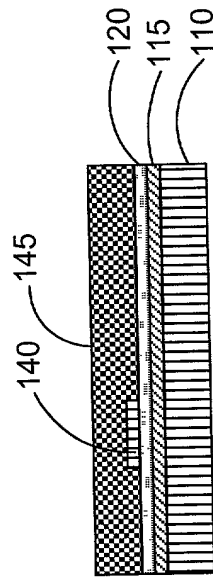


FIG. 2E

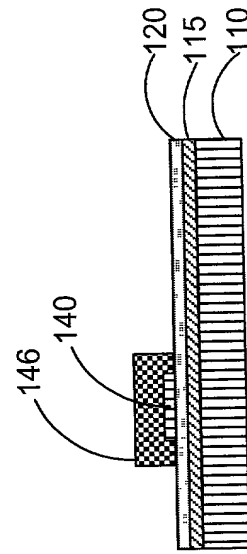


FIG. 2F

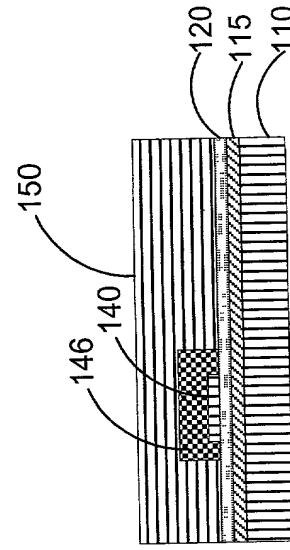


FIG. 2G

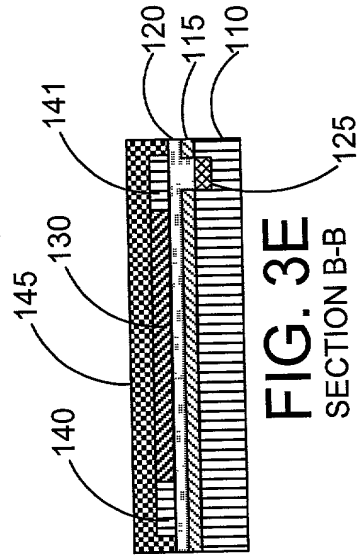


FIG. 3E
SECTION B-B

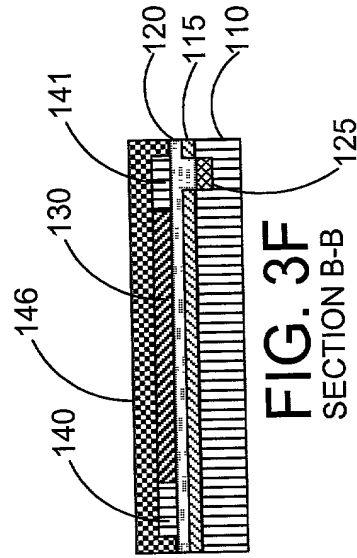


FIG. 3F
SECTION B-B

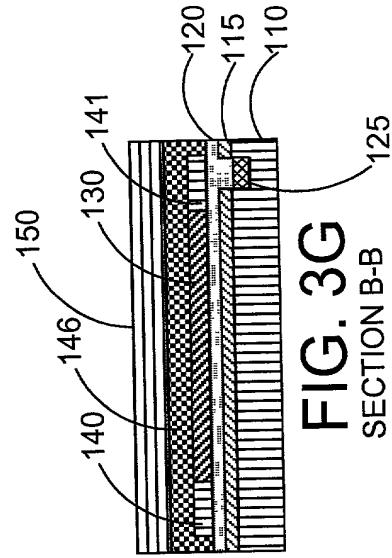


FIG. 3G
SECTION B-B

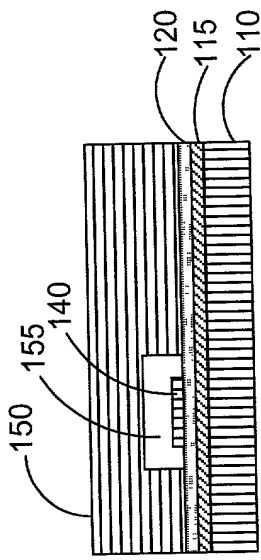


FIG. 2H

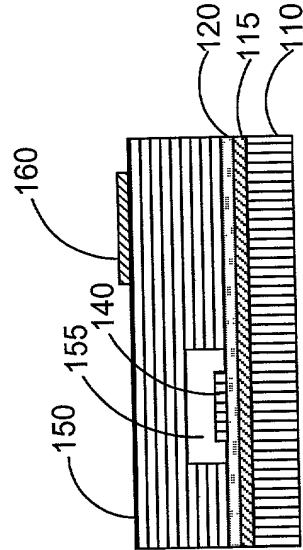


FIG. 2I

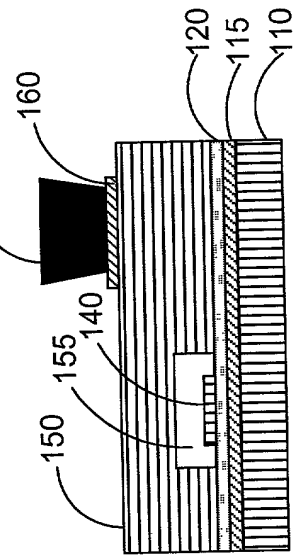


FIG. 2J

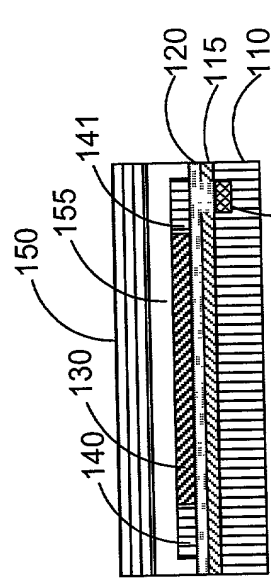


FIG. 3H
SECTION B-B

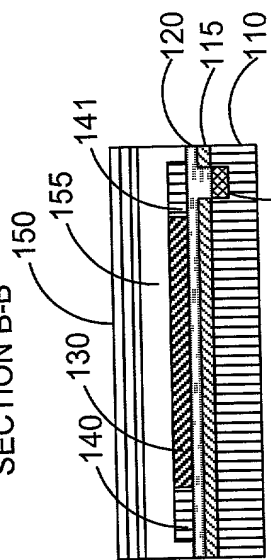


FIG. 3I
SECTION B-B

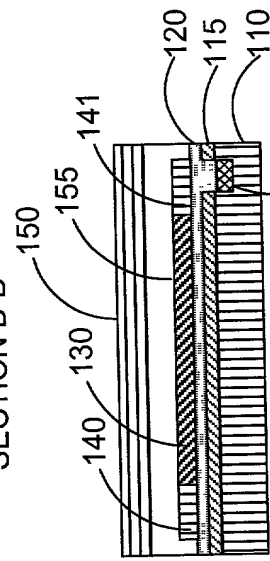


FIG. 3J
SECTION B-B

2012-02-24 00:00

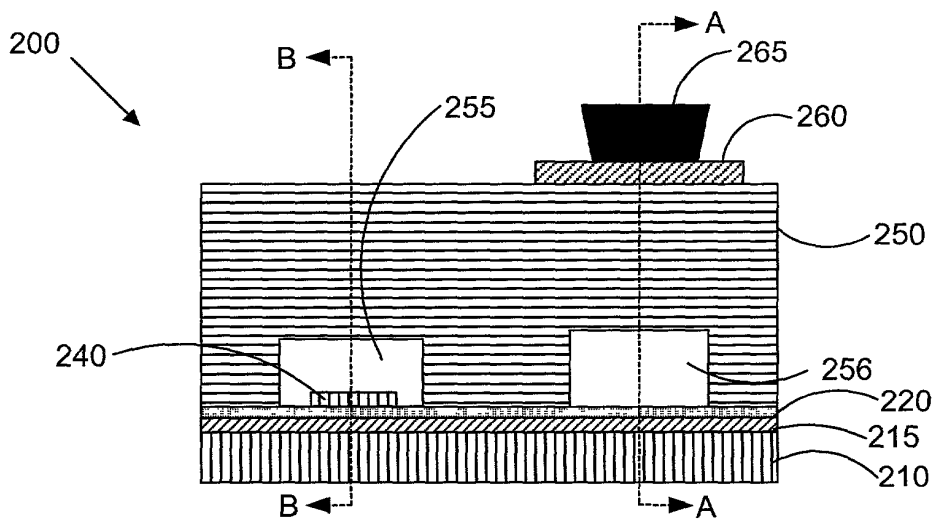


FIG. 4A

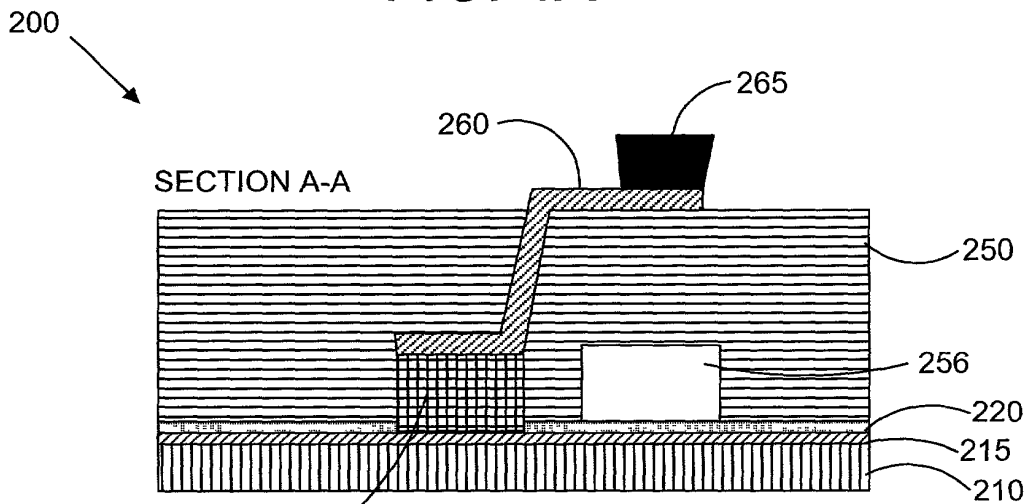


FIG. 4B

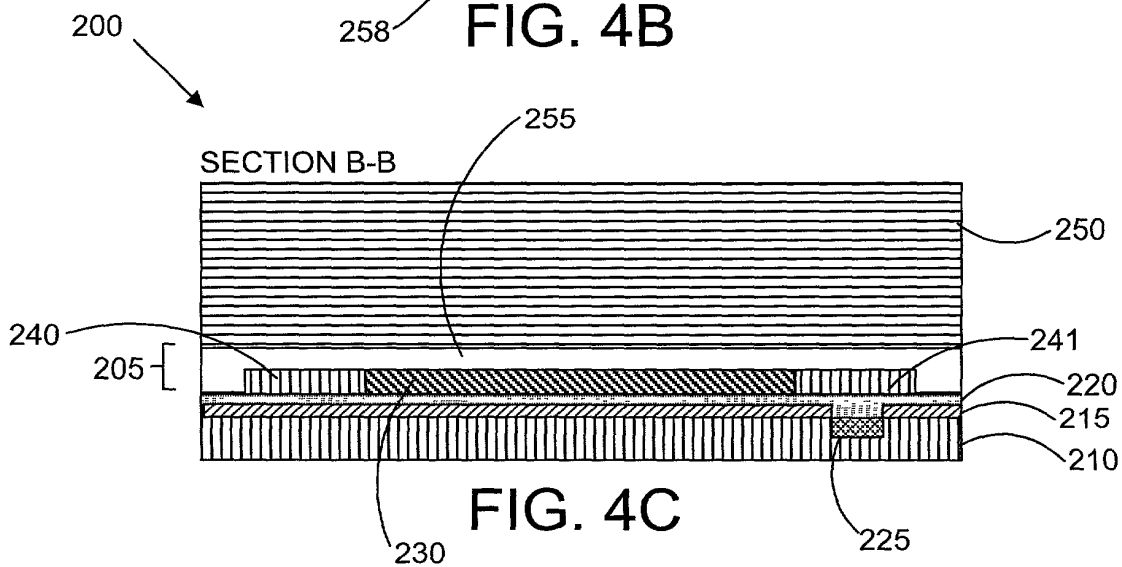


FIG. 4C

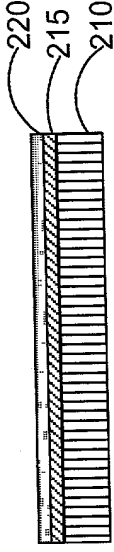


FIG. 5A

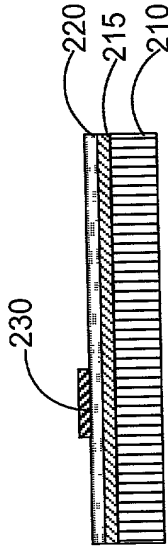


FIG. 5B

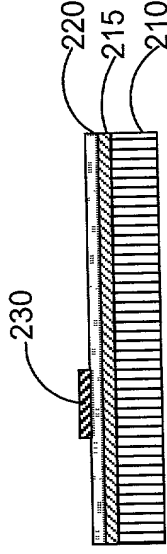


FIG. 5C

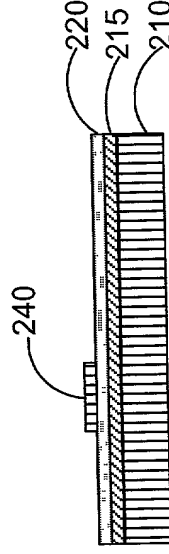


FIG. 5D

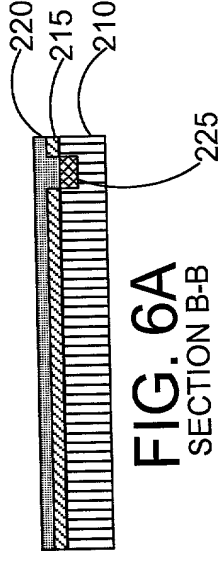


FIG. 6A
SECTION B-B

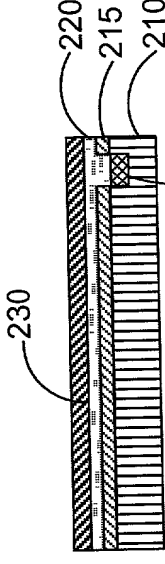


FIG. 6B
SECTION B-B

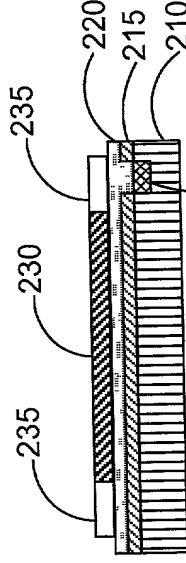


FIG. 6C
SECTION B-B

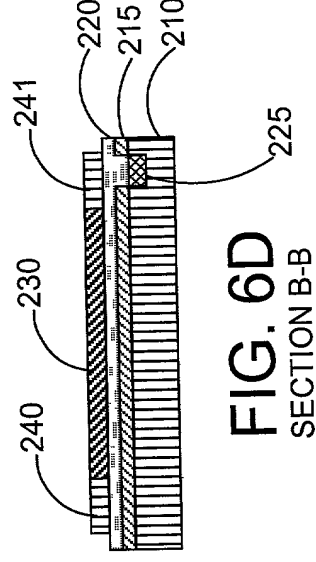


FIG. 6D
SECTION B-B

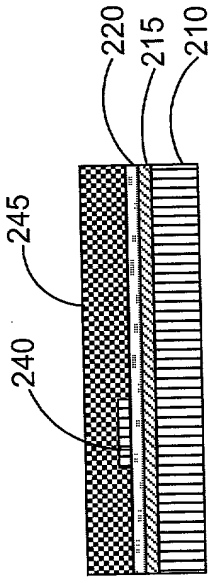


FIG. 5E

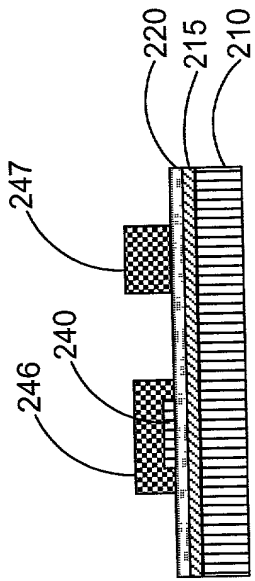


FIG. 5F

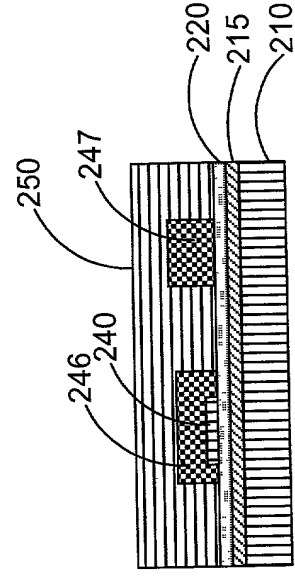


FIG. 5G

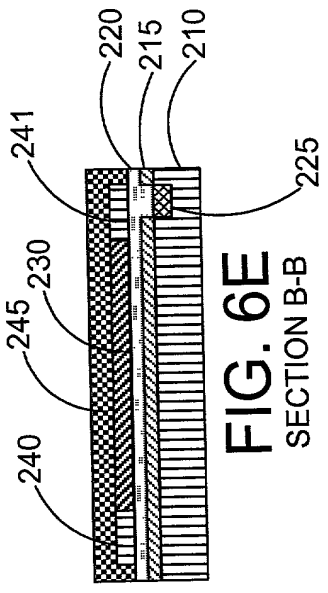


FIG. 6E
SECTION B-B

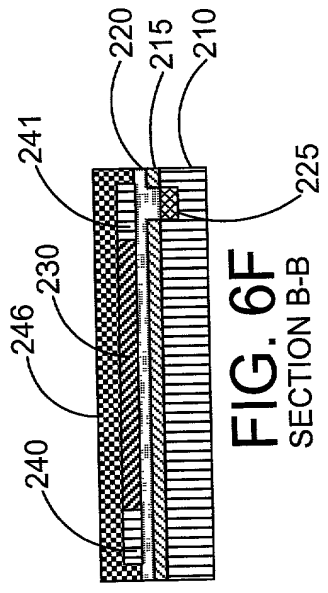


FIG. 6F
SECTION B-B

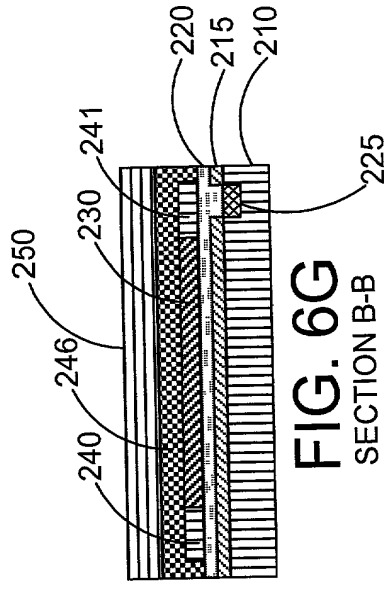


FIG. 6G
SECTION B-B

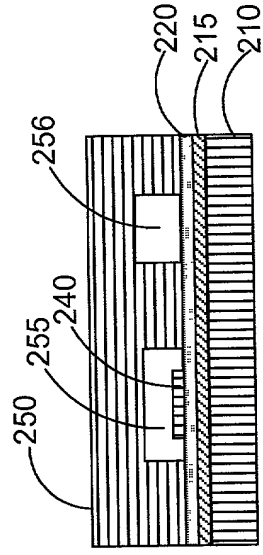


FIG. 5H

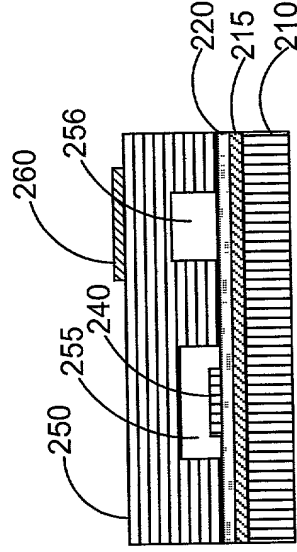


FIG. 5I

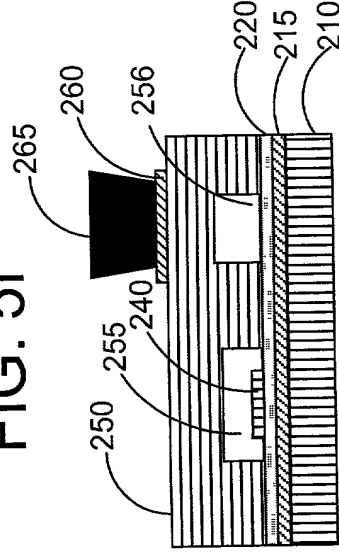


FIG. 5J

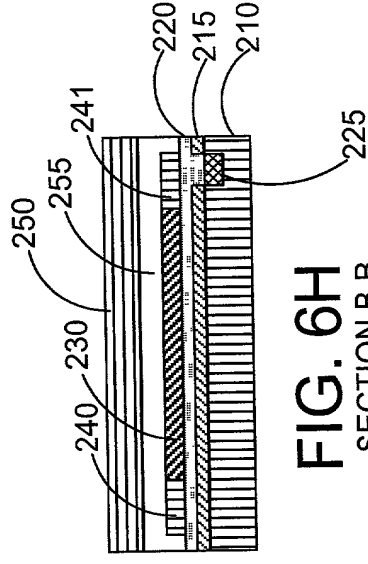


FIG. 6H
SECTION B-B

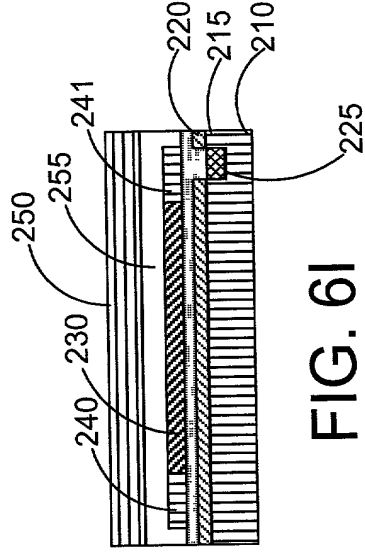


FIG. 6I
SECTION B-B

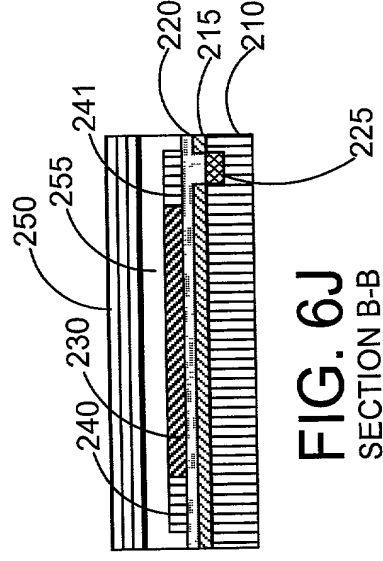
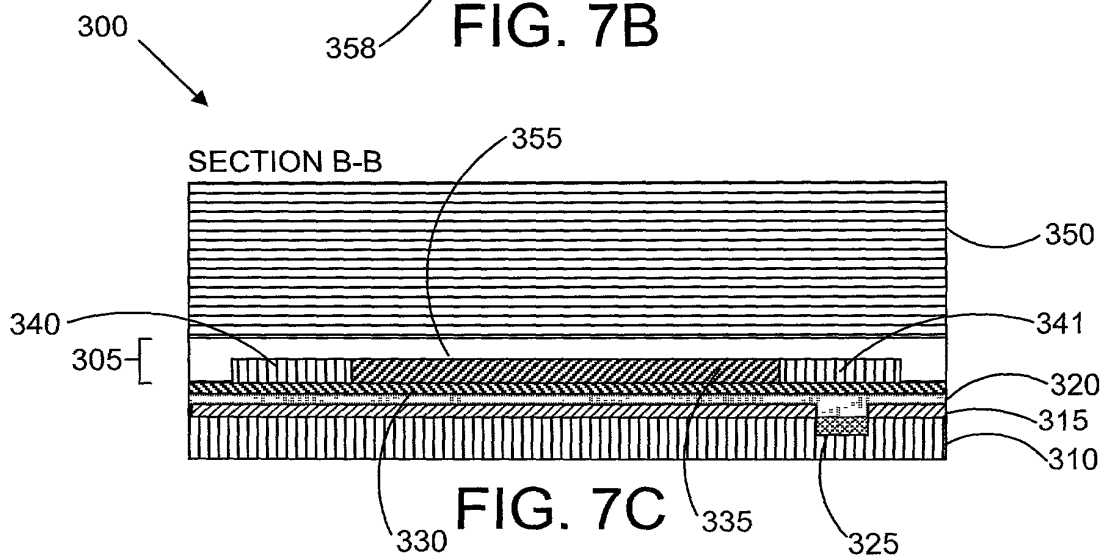


FIG. 6J
SECTION B-B

FIG. 7B

FIG. 7B



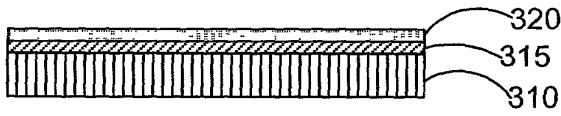


FIG. 8A

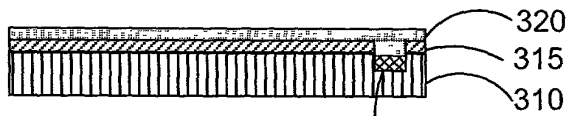


FIG. 9A
SECTION B-B

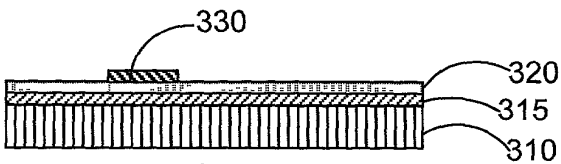


FIG. 8B

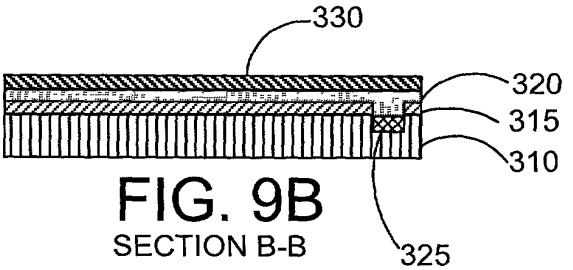


FIG. 9B
SECTION B-B

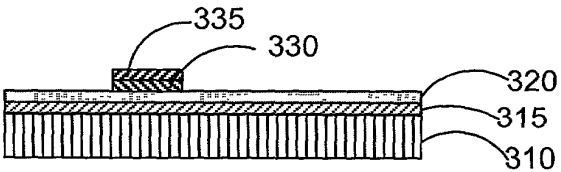


FIG. 8C

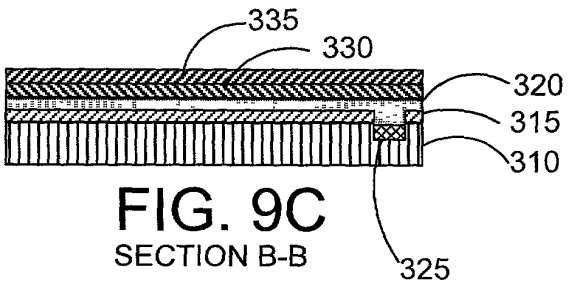


FIG. 9C
SECTION B-B

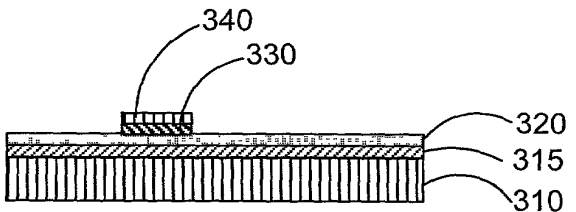


FIG. 8D

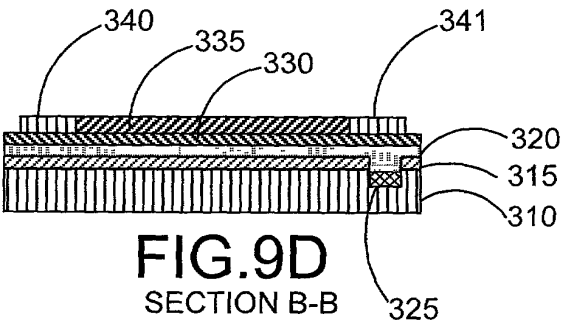


FIG. 9D
SECTION B-B

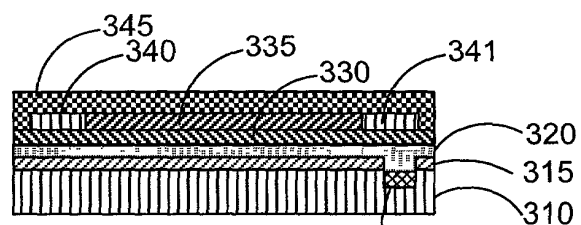
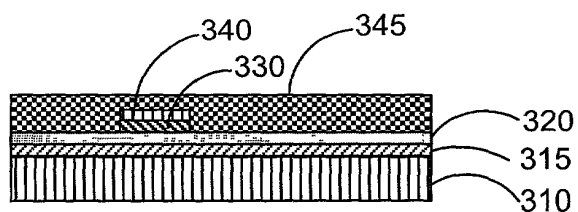


FIG. 9E

SECTION B-B 325

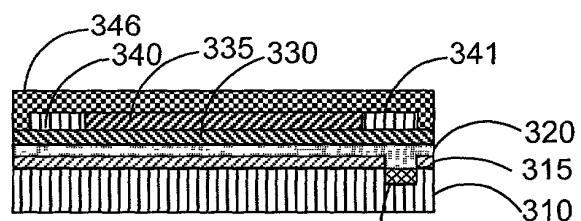
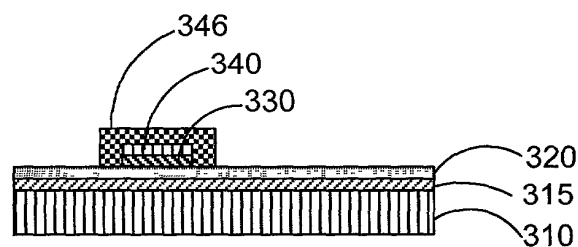


FIG. 9F

SECTION B-B 325

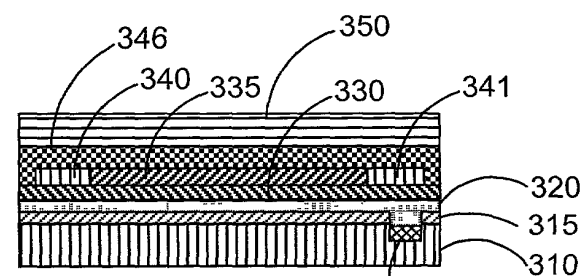
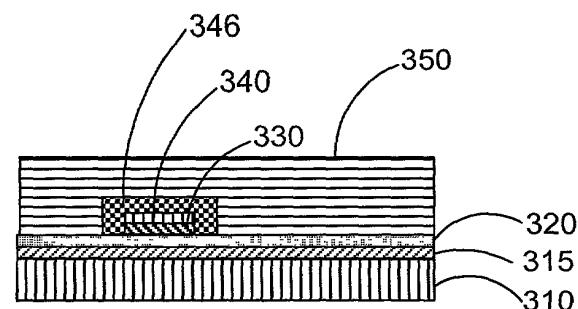
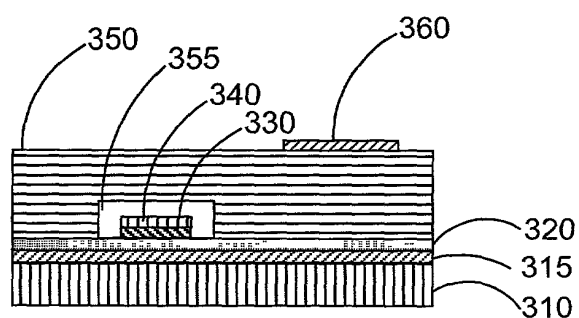


FIG. 9G

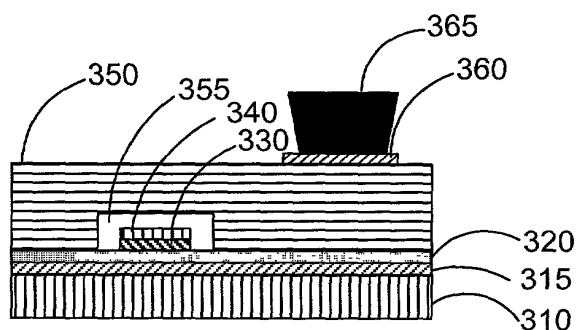
SECTION B-B

A cross-sectional view of a semiconductor device 100. The device consists of a substrate 310 with a vertical sidewall 315. A gate stack 320 is formed on the substrate. A channel layer 330 is located within the gate stack. A gate electrode 340 is formed on top of the gate stack. A gate insulating layer 350 is formed on top of the gate electrode. A gate contact 355 is formed on the gate insulating layer. A gate contact pad 341 is formed on the gate contact. A gate contact pad 341 is also formed on the gate insulating layer.

SECTION B-B



SECTION B-B



SECTION B-B

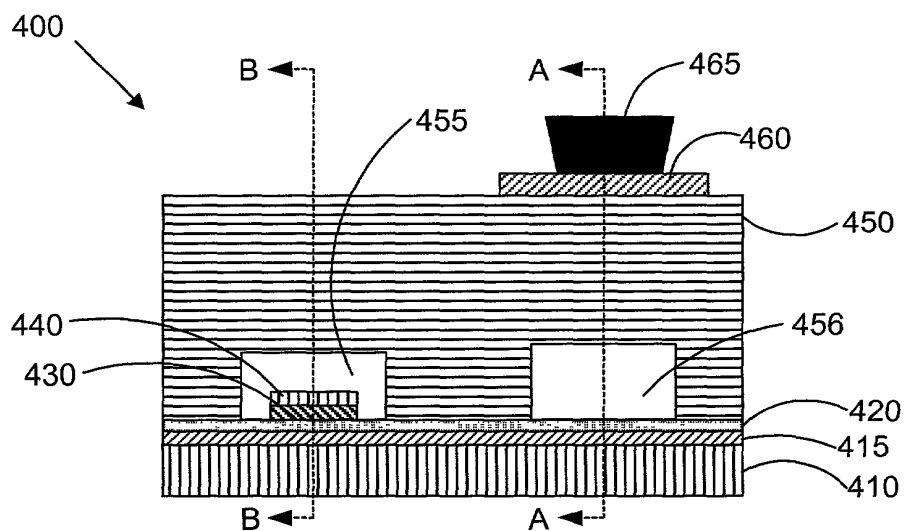


FIG. 10A

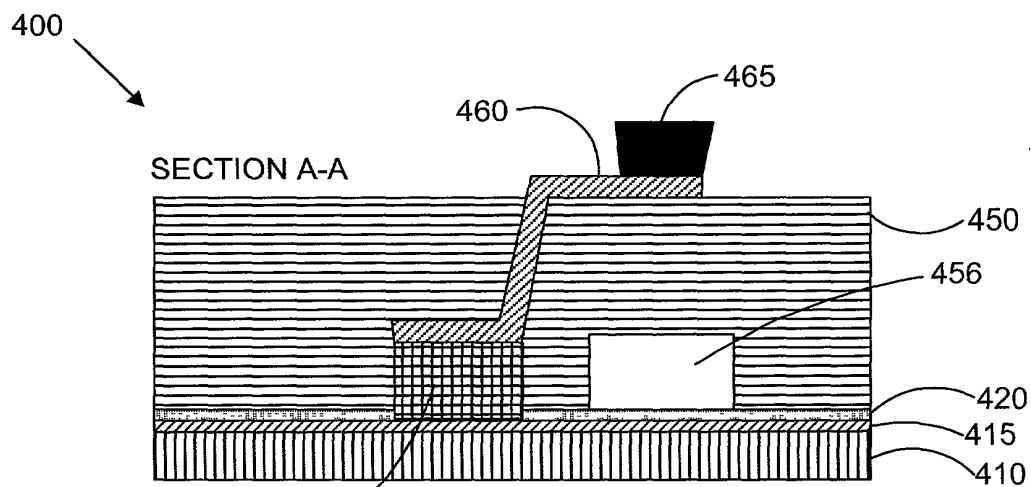
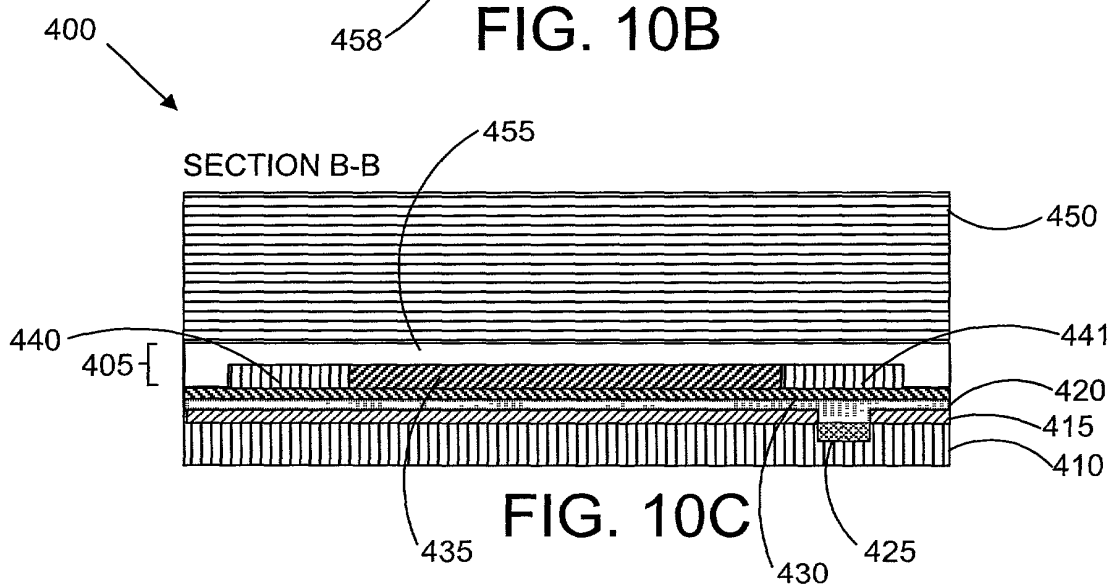


FIG. 10B



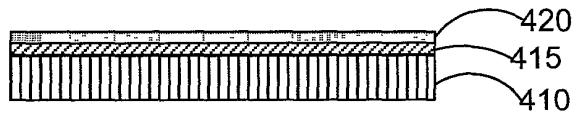


FIG. 11A

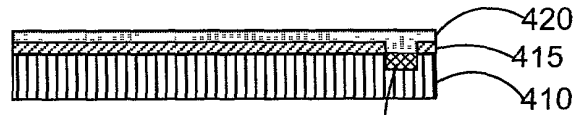


FIG. 12A
SECTION B-B

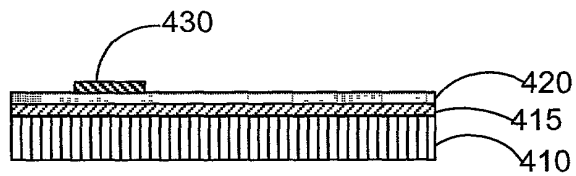


FIG. 11B

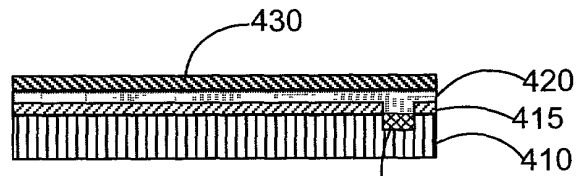


FIG. 12B
SECTION B-B

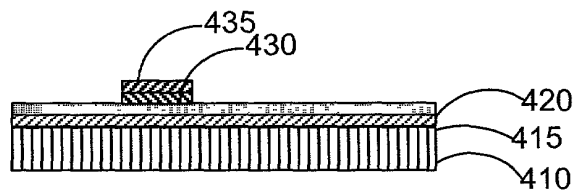


FIG. 11C

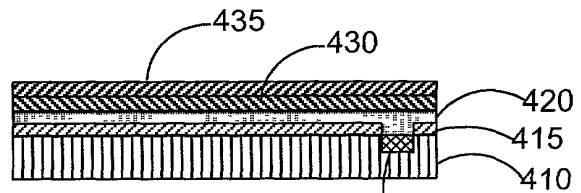


FIG. 12C
SECTION B-B

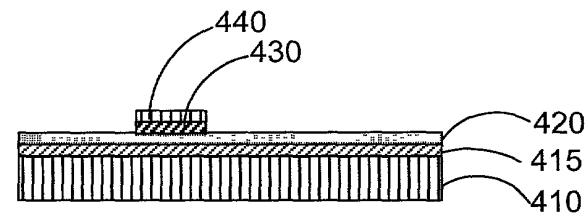


FIG. 11D

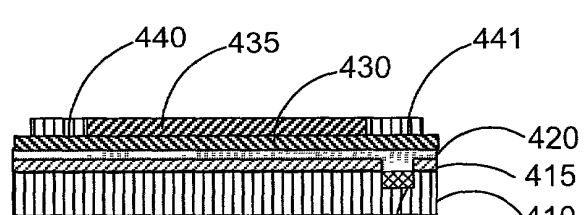


FIG. 12D
SECTION B-B

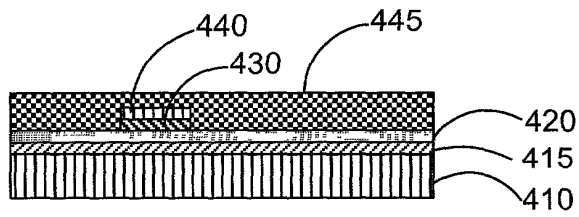


FIG. 11E

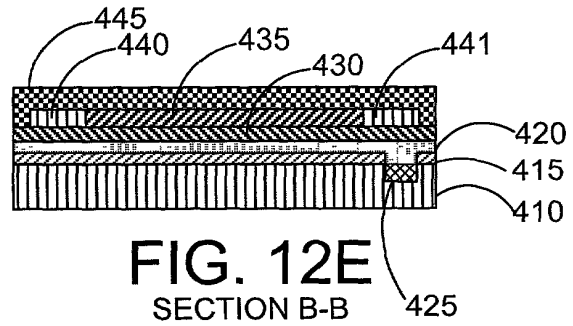


FIG. 12E

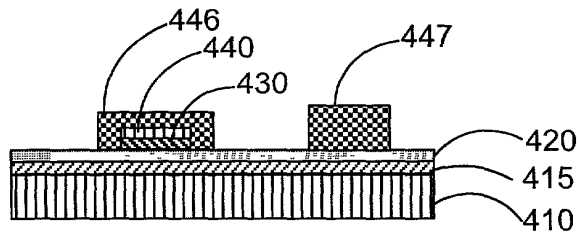


FIG. 11F

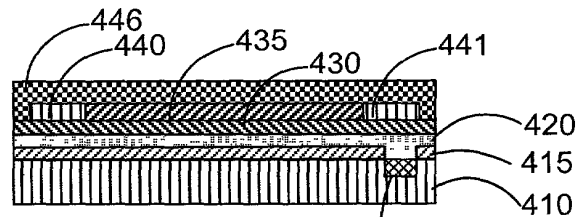


FIG. 12F

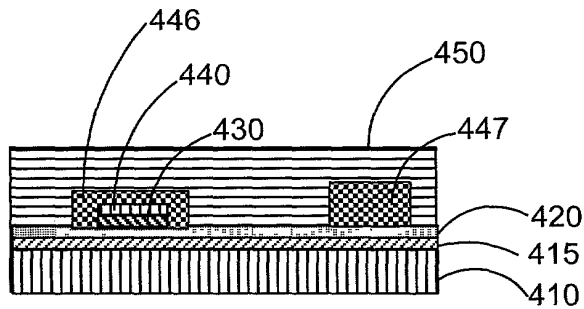


FIG. 11G

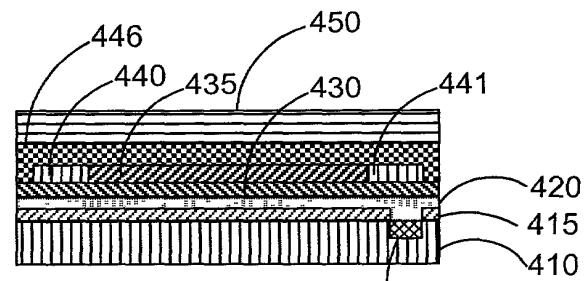


FIG. 12G

2011-02-20 09:44:00

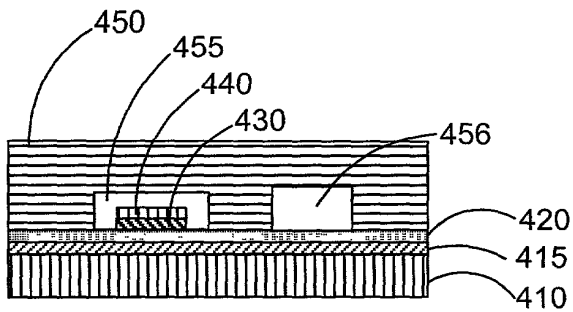


FIG. 11H

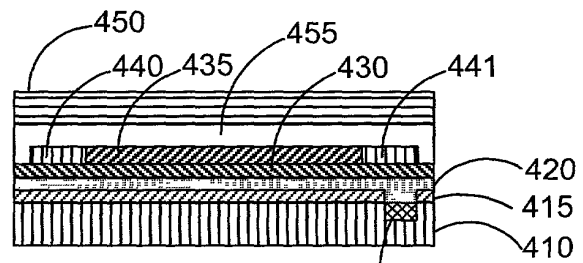


FIG. 12H

SECTION B-B

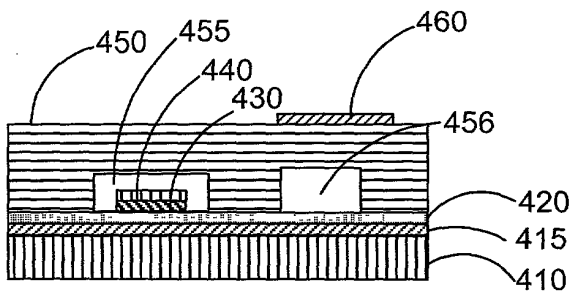


FIG. 11I

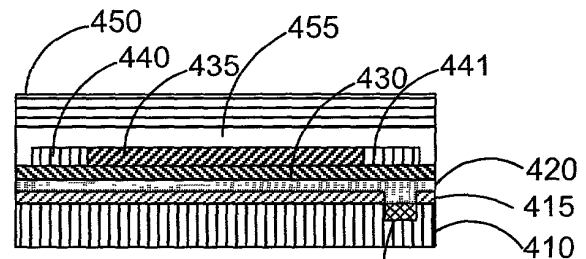


FIG. 12I

SECTION B-B

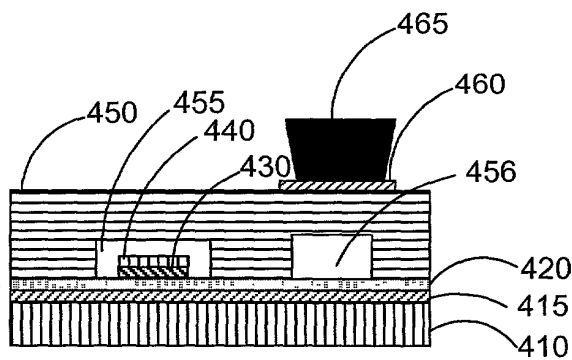


FIG. 11J

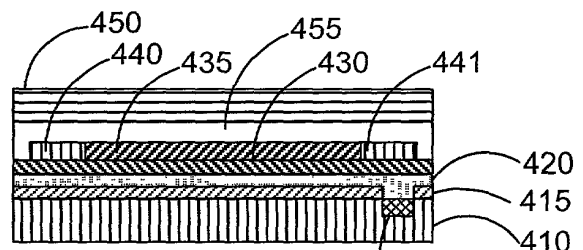


FIG. 12J

SECTION B-B

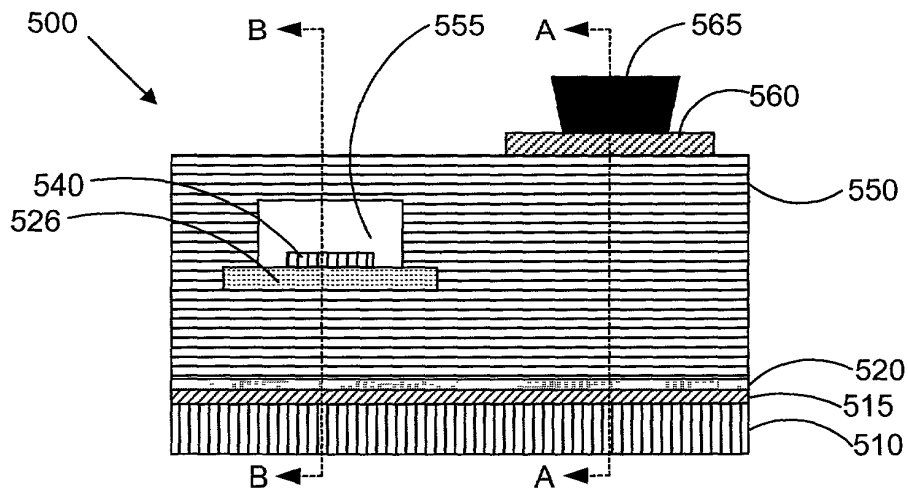


FIG. 13A

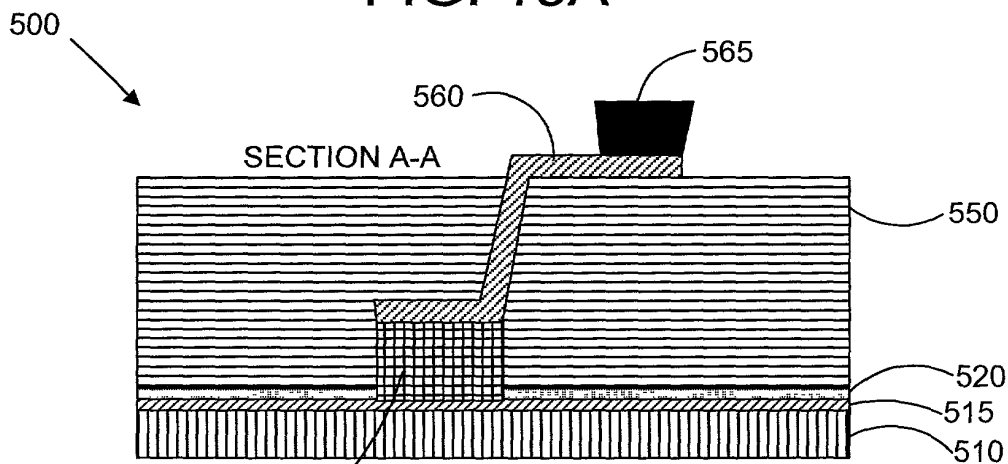


FIG. 13B

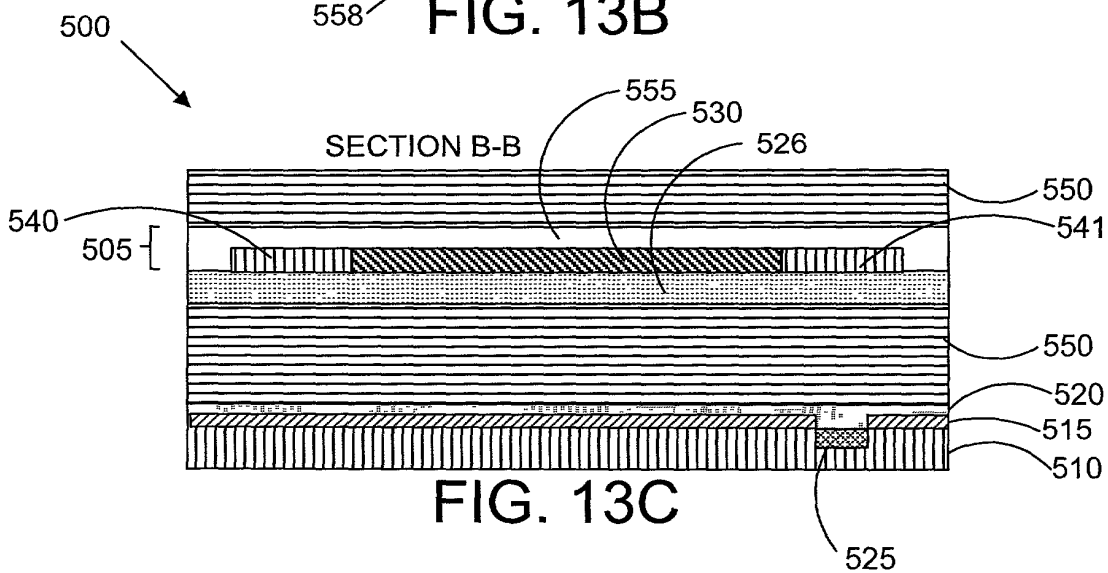


FIG. 13C

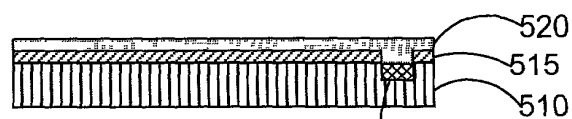
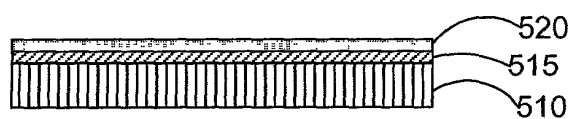


FIG. 15A

SECTION B-B

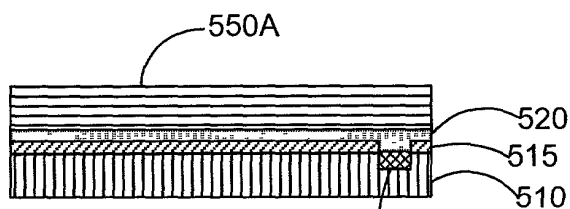
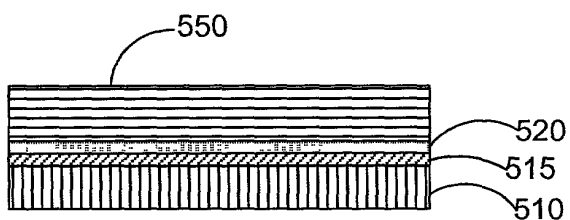


FIG. 15B

SECTION B-B

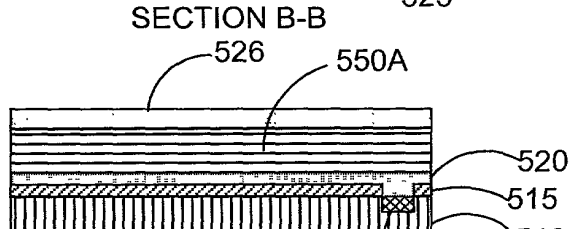
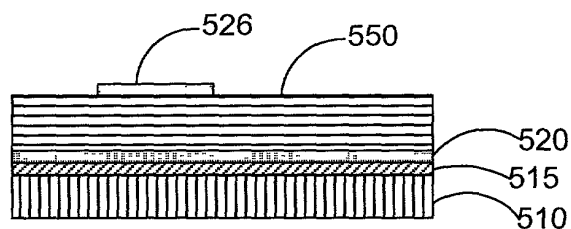


FIG. 15C

525

SECTION B-B

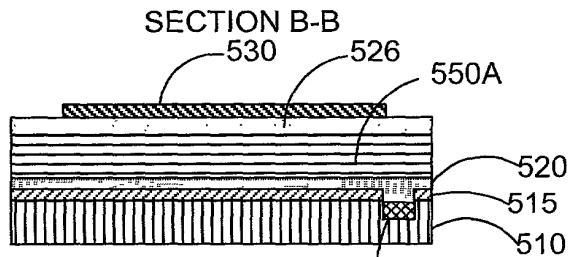
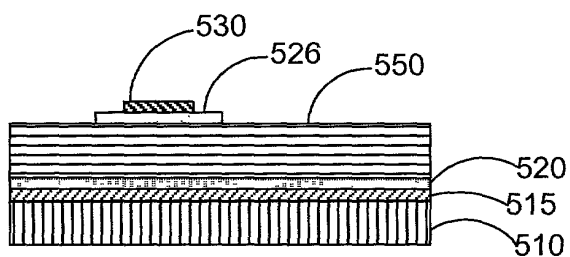


FIG. 15D

525

SECTION B-B

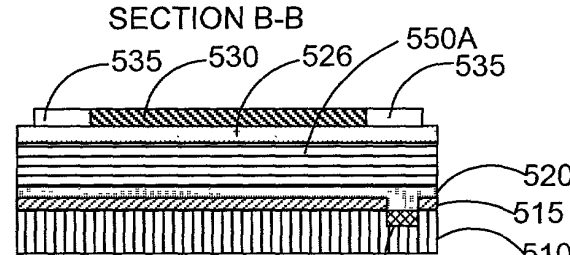
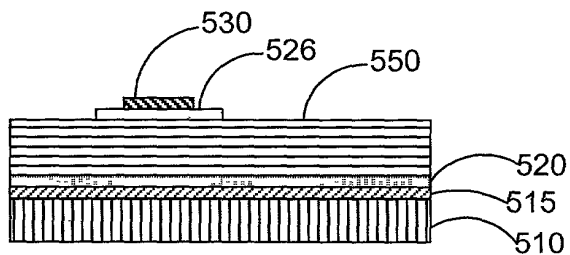


FIG. 15E

SECTION B-B

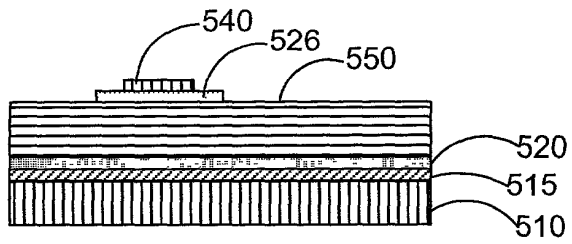


FIG. 14F

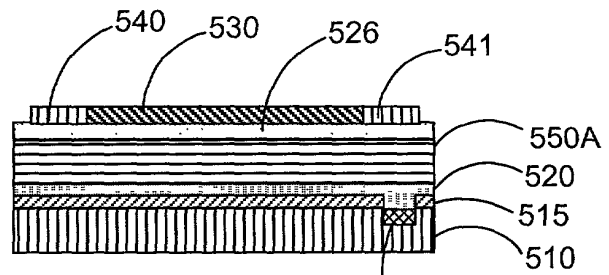


FIG. 15F

SECTION B-B

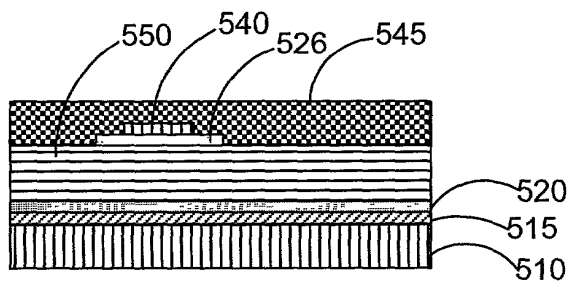


FIG. 14G

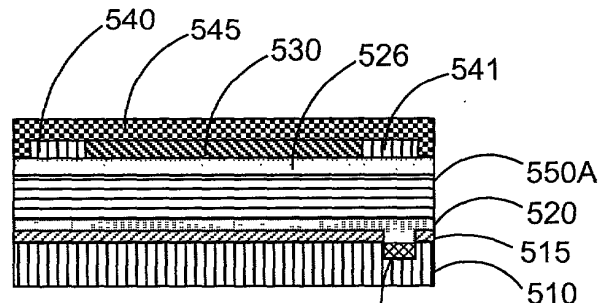


FIG. 15G

SECTION B-B

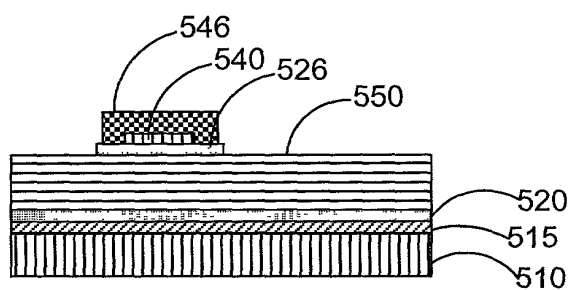


FIG. 14H

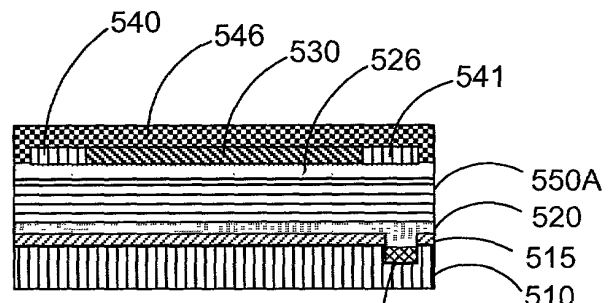


FIG. 15H

SECTION B-B

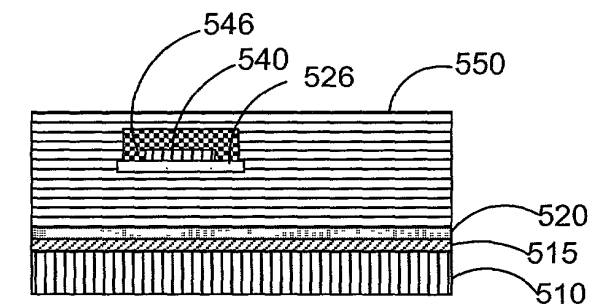


FIG. 14I

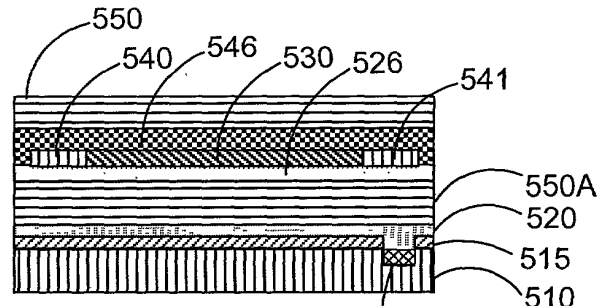


FIG. 15I

SECTION B-B

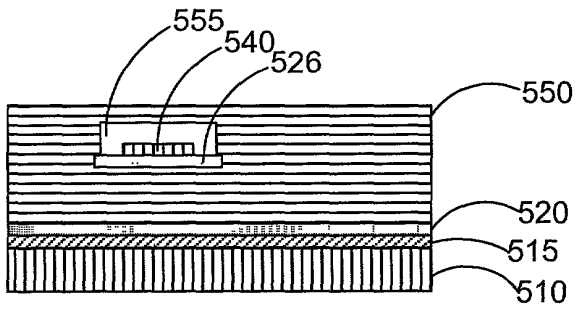


FIG. 14J

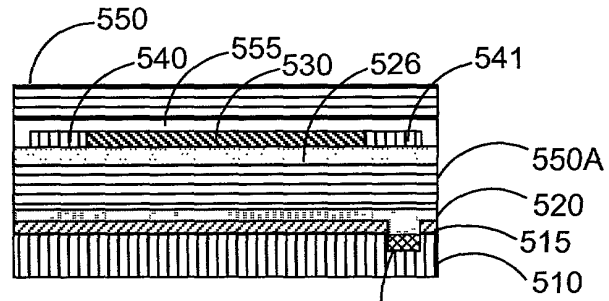


FIG. 15J

SECTION B-B

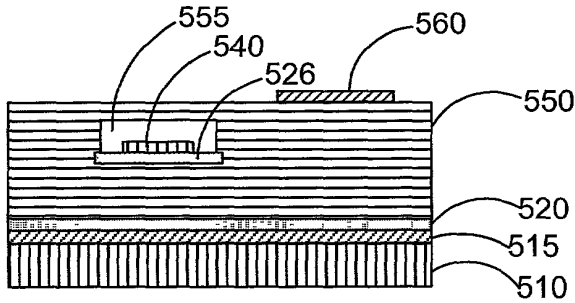


FIG. 14K

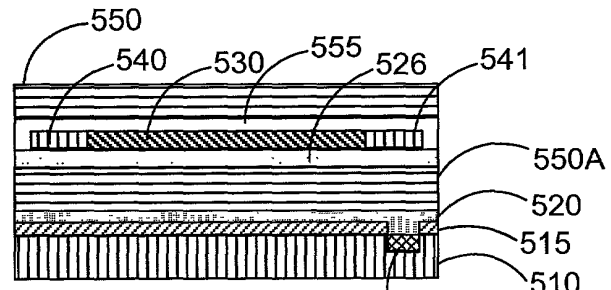


FIG. 15K

SECTION B-B

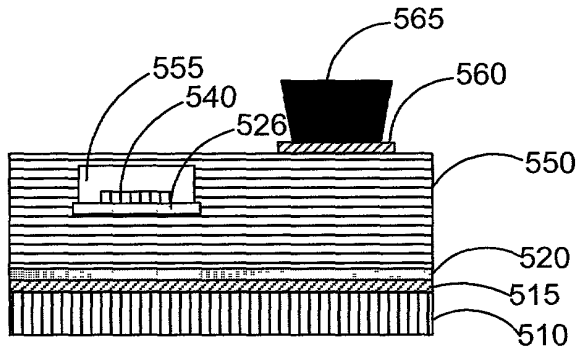


FIG. 14L

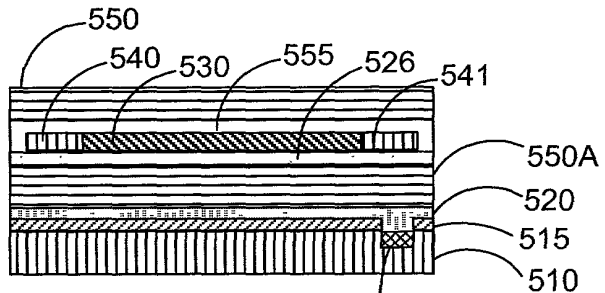


FIG. 15L

SECTION B-B

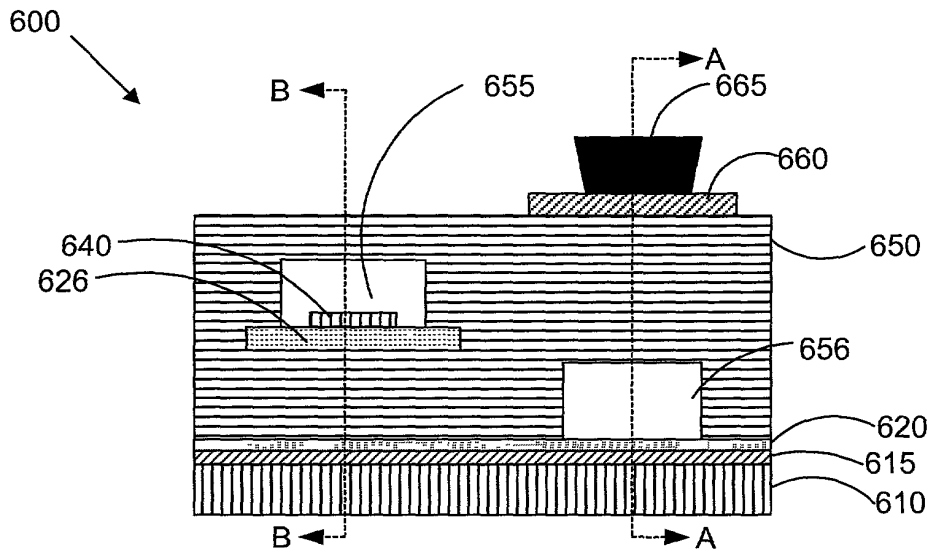


FIG. 16A

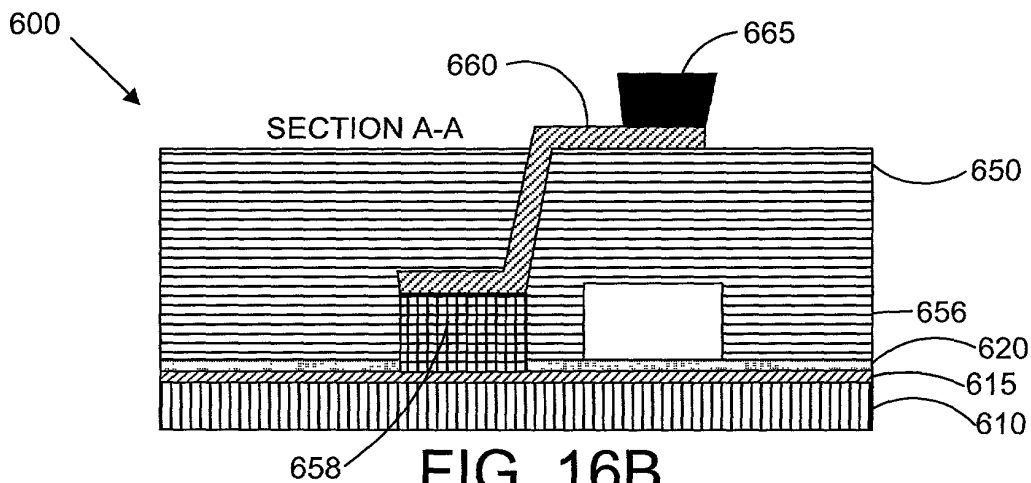


FIG. 16B

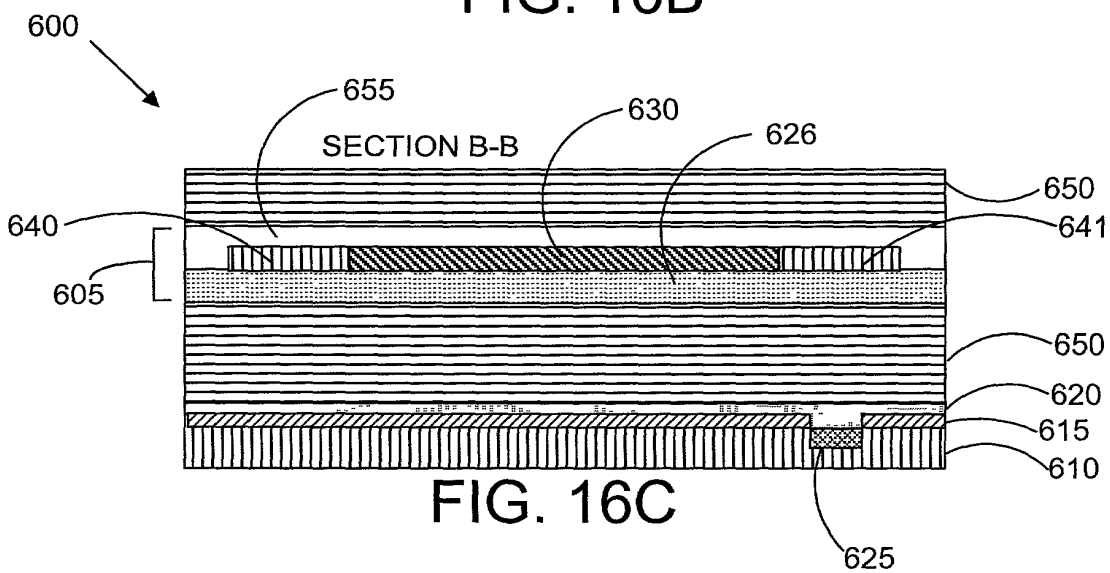


FIG. 16C



FIG. 17A

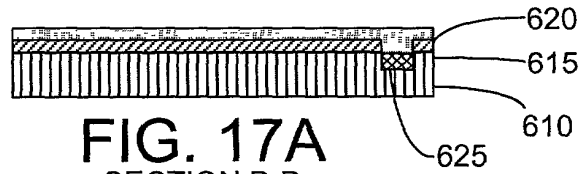


FIG. 17A
SECTION B-B

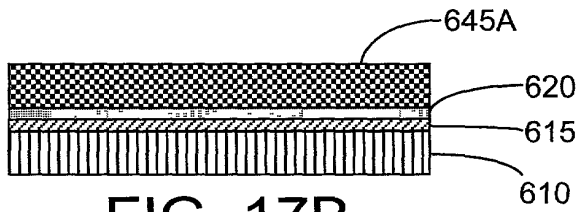


FIG. 17B

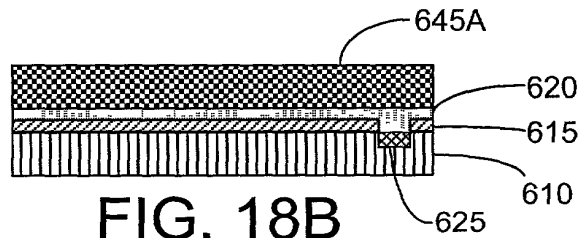


FIG. 18B
SECTION B-B

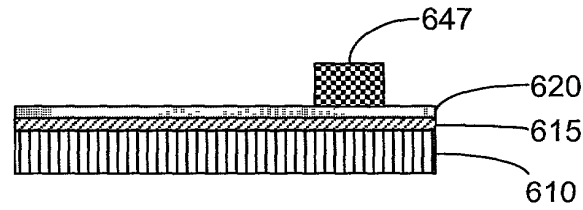


FIG. 17C

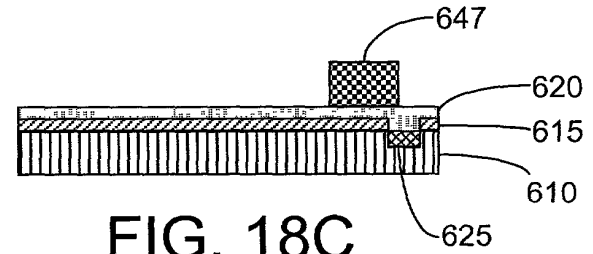


FIG. 18C
SECTION B-B

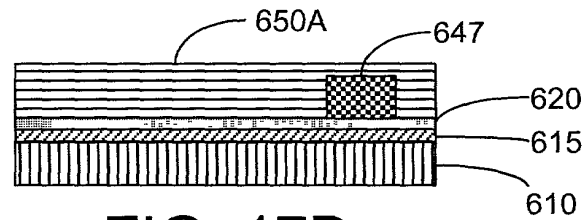


FIG. 17D

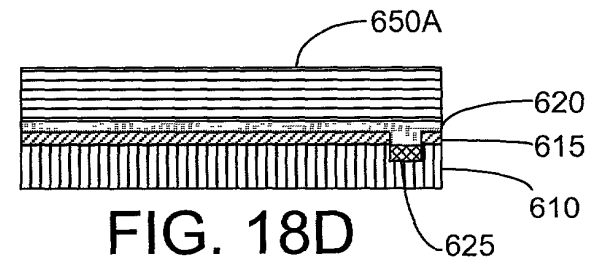
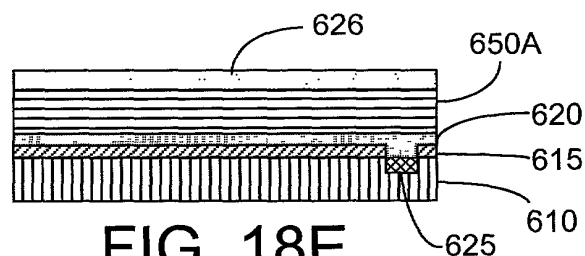
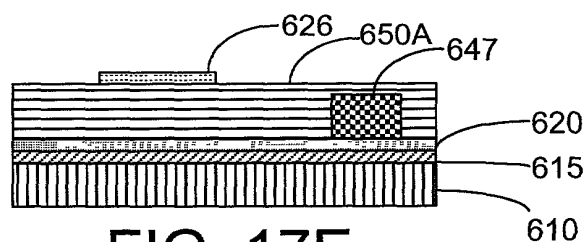
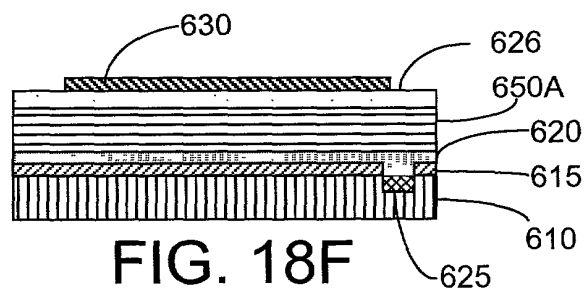
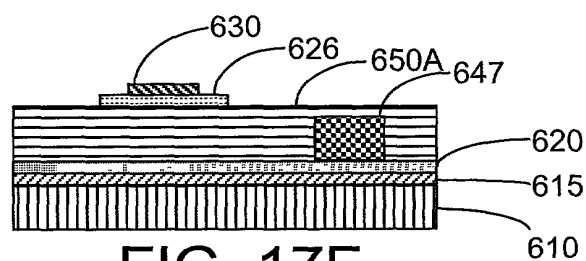


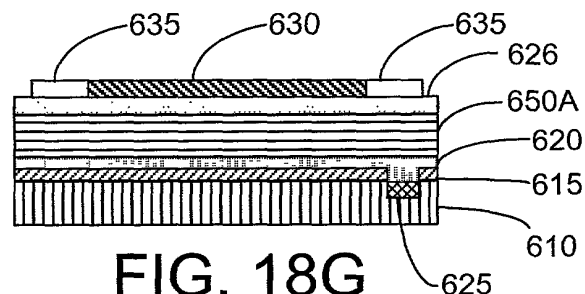
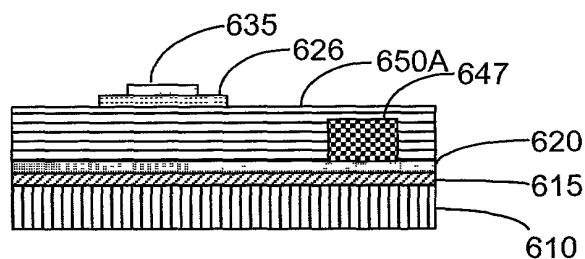
FIG. 18D
SECTION B-B



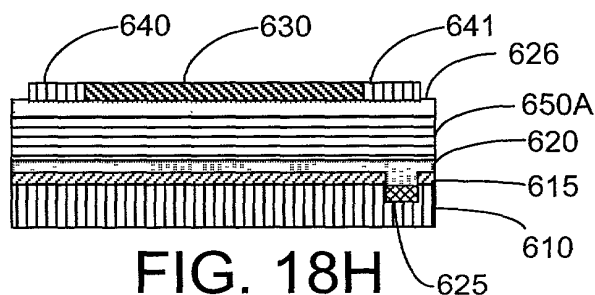
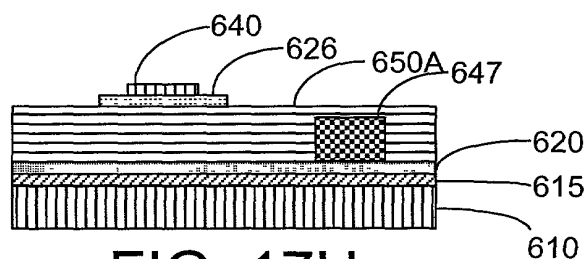
SECTION B-B



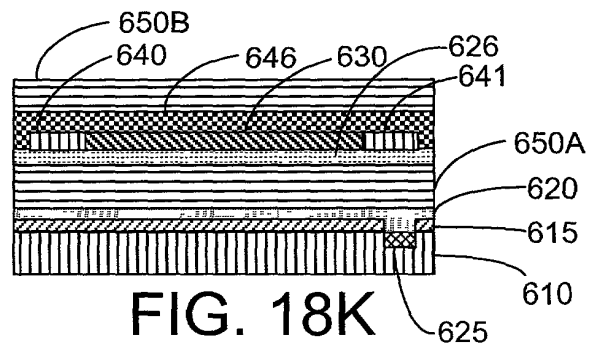
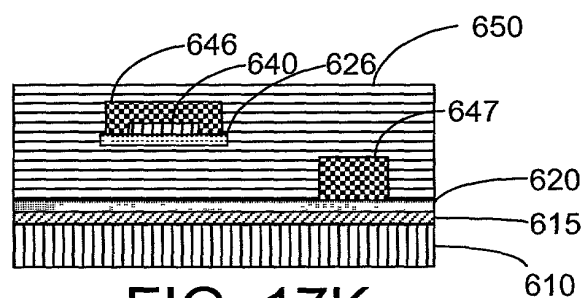
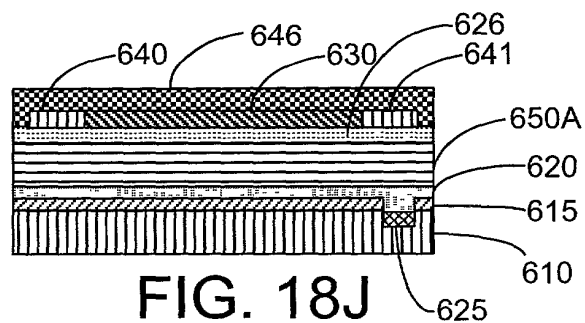
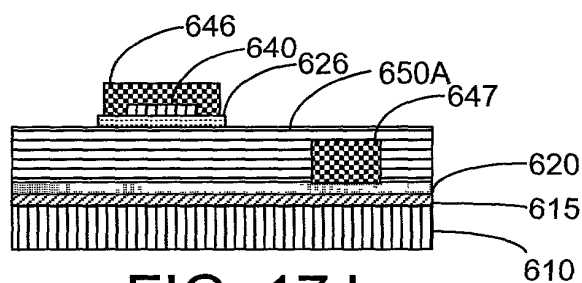
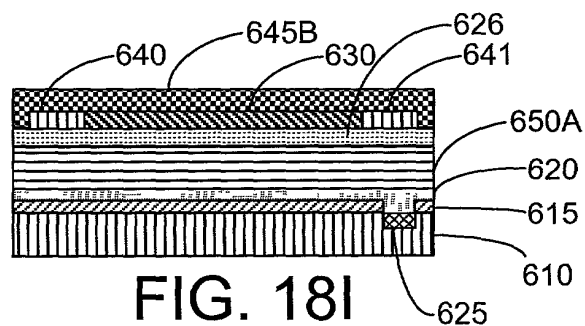
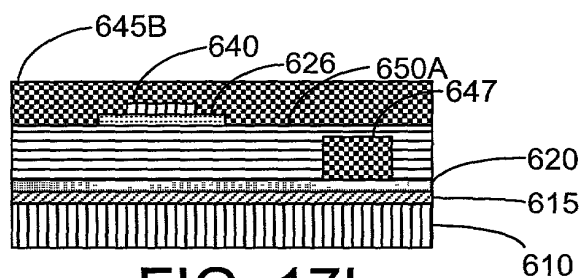
SECTION B-B



SECTION B-B



SECTION B-B



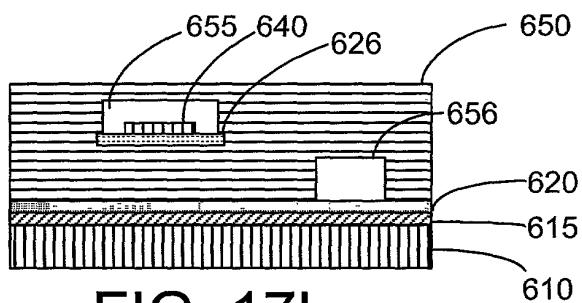


FIG. 17L

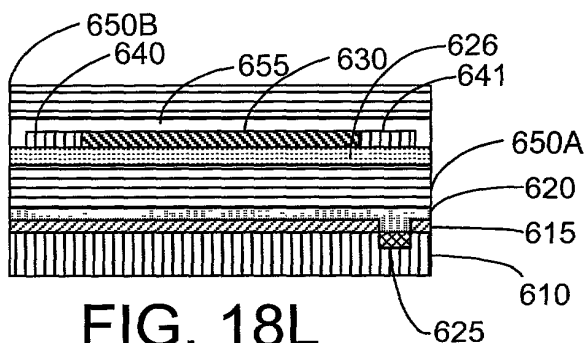


FIG. 18L

SECTION B-B

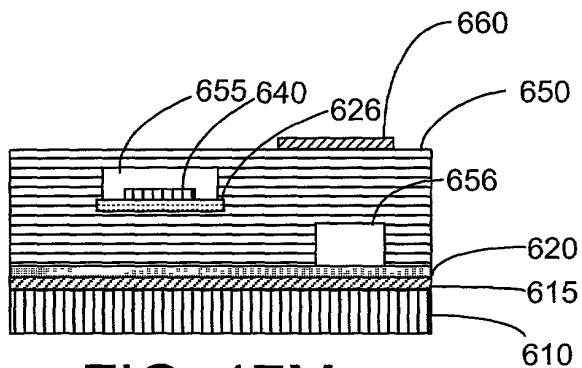


FIG. 17M

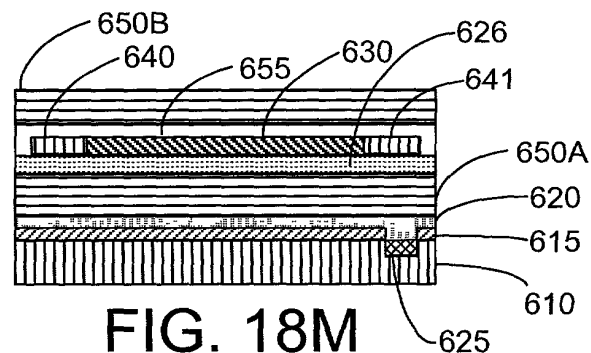


FIG. 18M

SECTION B-B

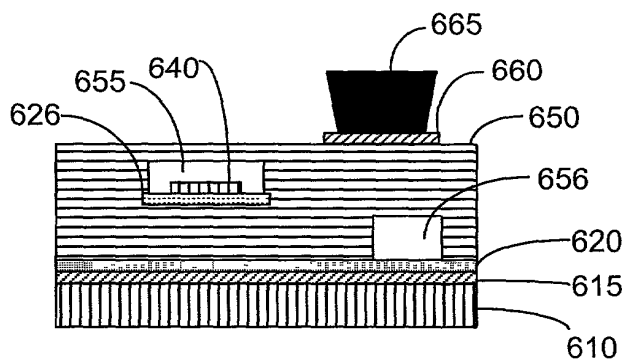


FIG. 17N

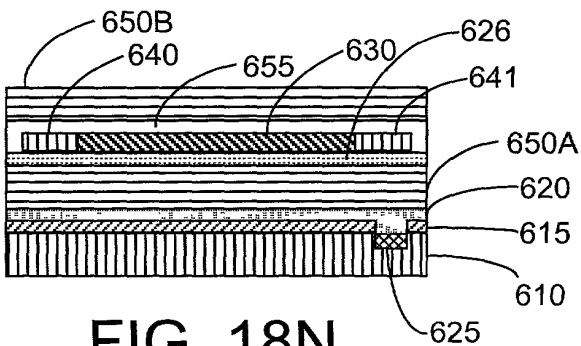


FIG. 18N

SECTION B-B

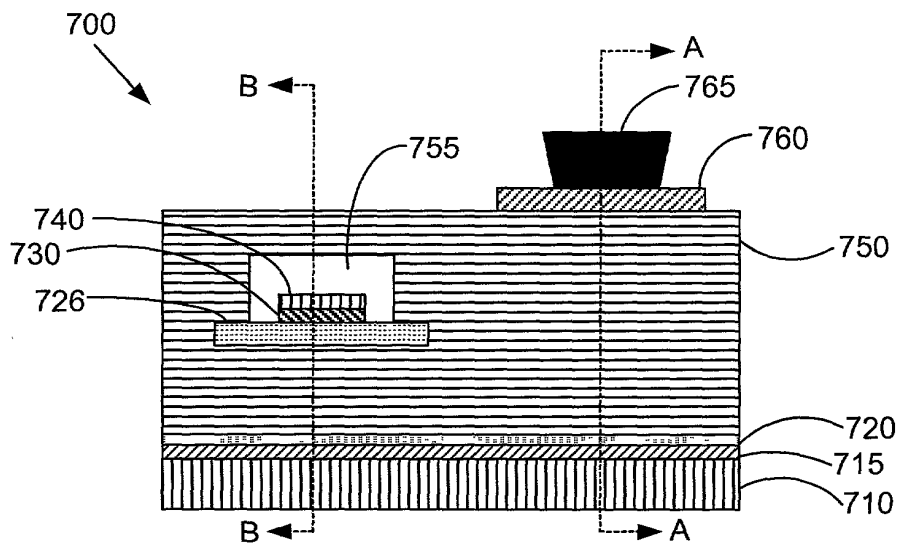


FIG. 19A

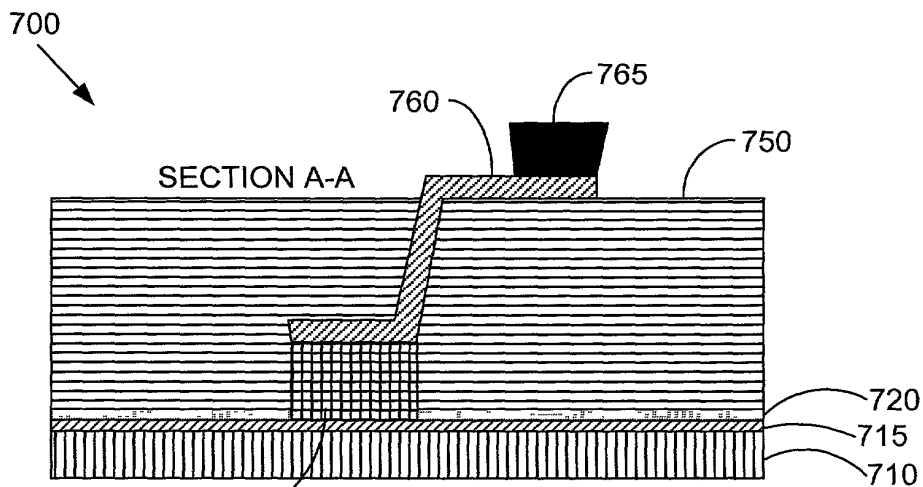


FIG. 19B

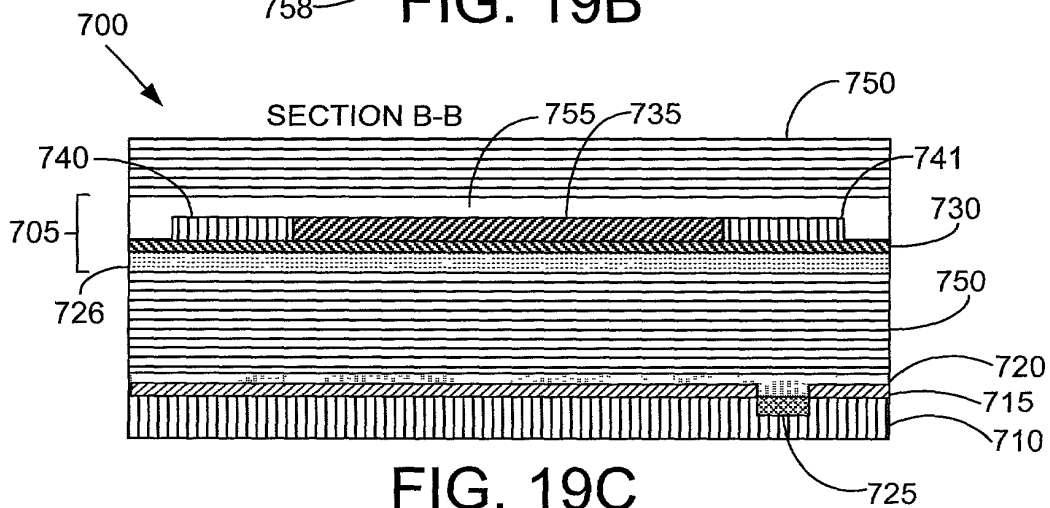


FIG. 19C



FIG. 20A

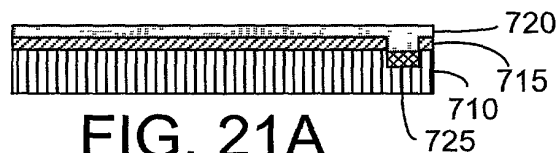


FIG. 21A
SECTION B-B

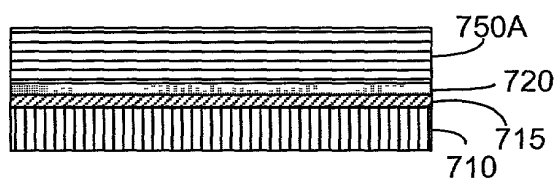


FIG. 20B

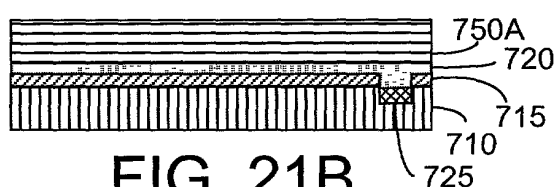


FIG. 21B
SECTION B-B

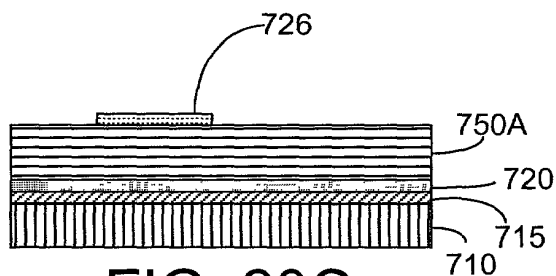


FIG. 20C

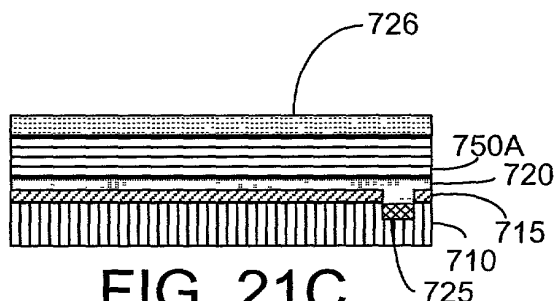


FIG. 21C
SECTION B-B

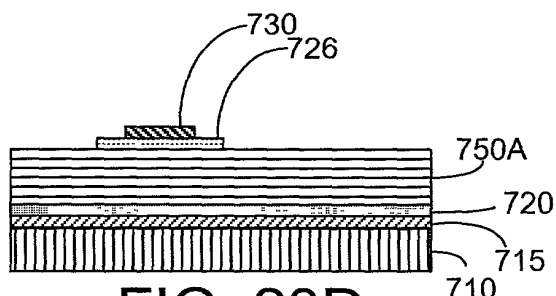


FIG. 20D

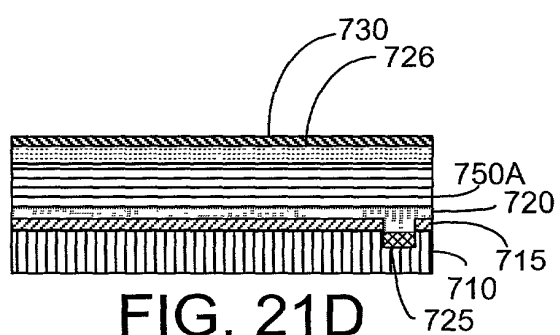


FIG. 21D
SECTION B-B

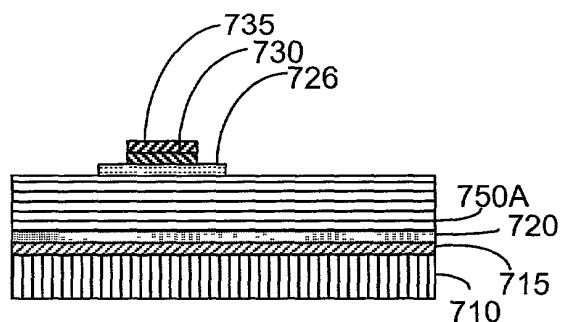


FIG. 20E

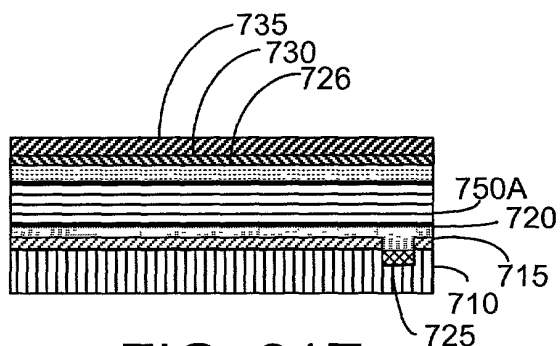


FIG. 21E

SECTION B-B

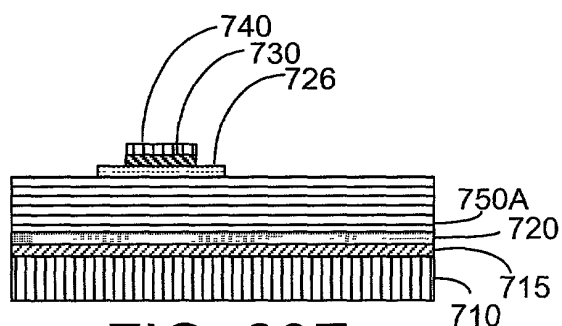


FIG. 20F

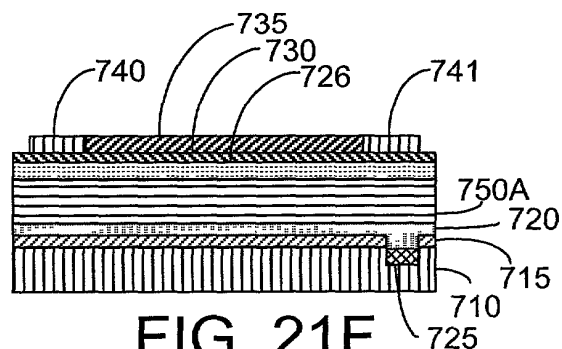


FIG. 21F

SECTION B-B

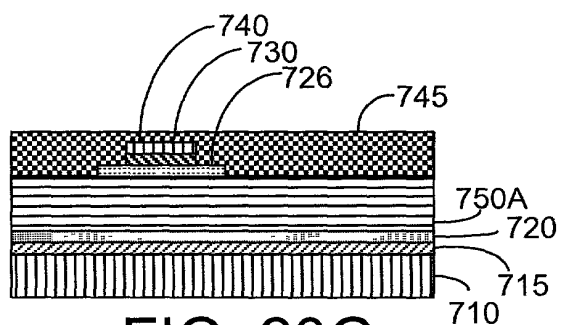


FIG. 20G

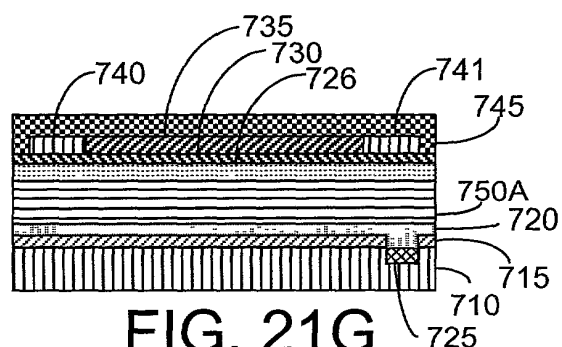


FIG. 21G

SECTION B-B

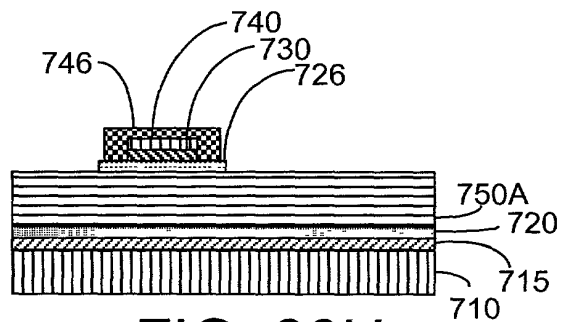


FIG. 20H

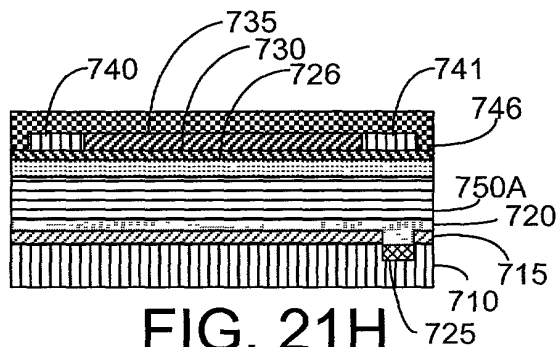


FIG. 21H

SECTION B-B

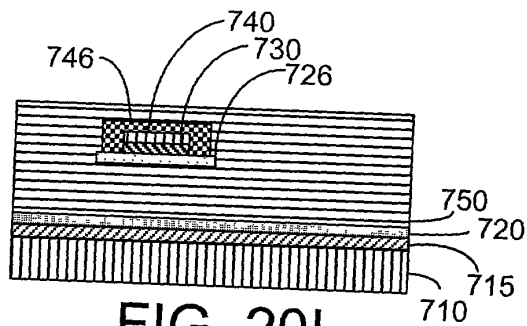


FIG. 20I

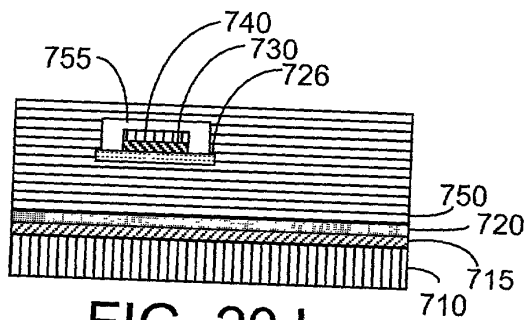


FIG. 20J

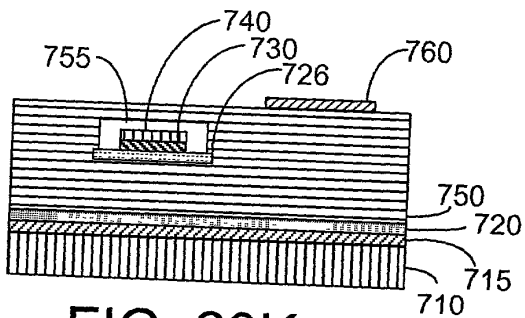


FIG. 20K

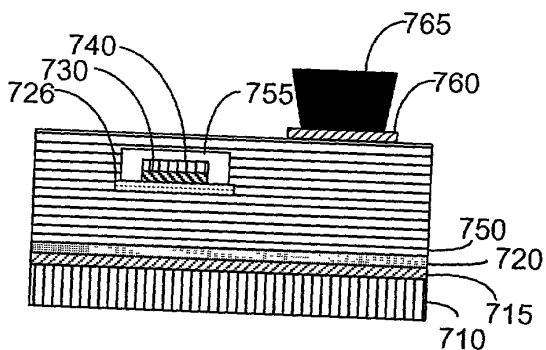


FIG. 20L

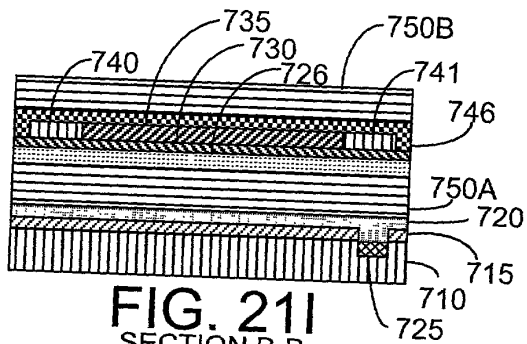


FIG. 21I

SECTION B-B

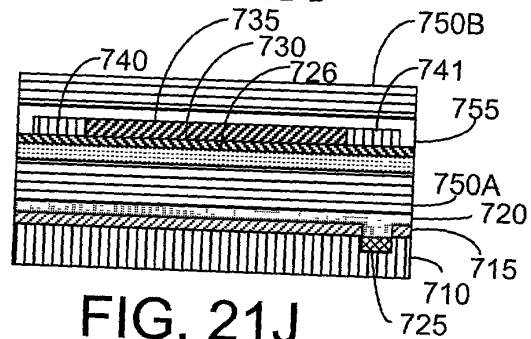


FIG. 21J

SECTION B-B

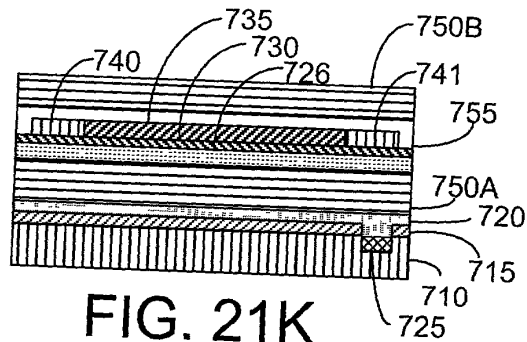


FIG. 21K

SECTION B-B

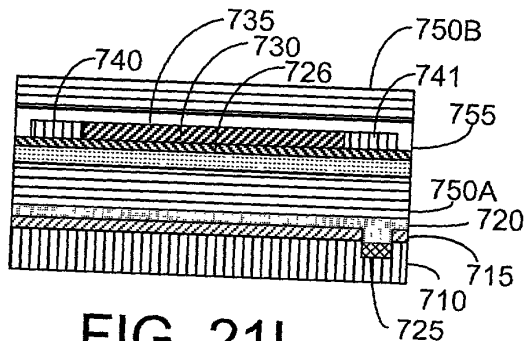


FIG. 21L

SECTION B-B

201120-024400K

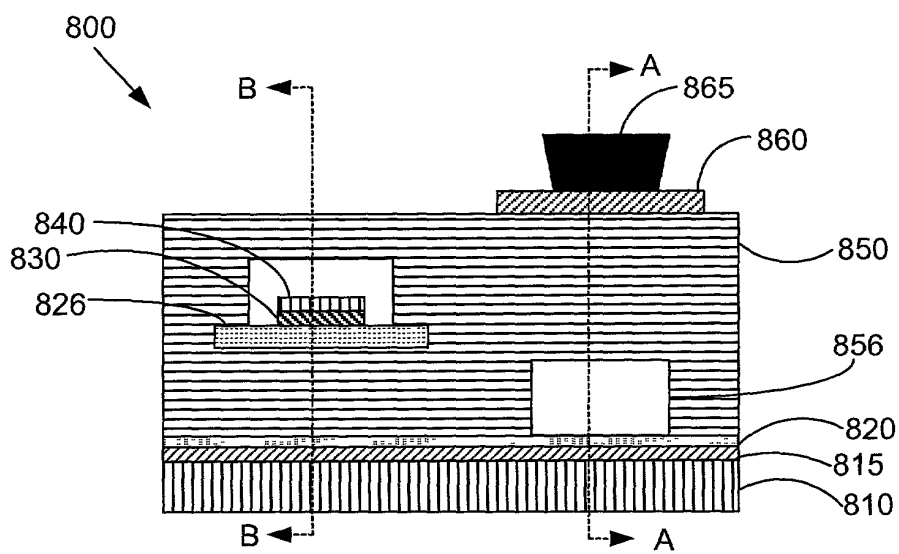


FIG. 22A

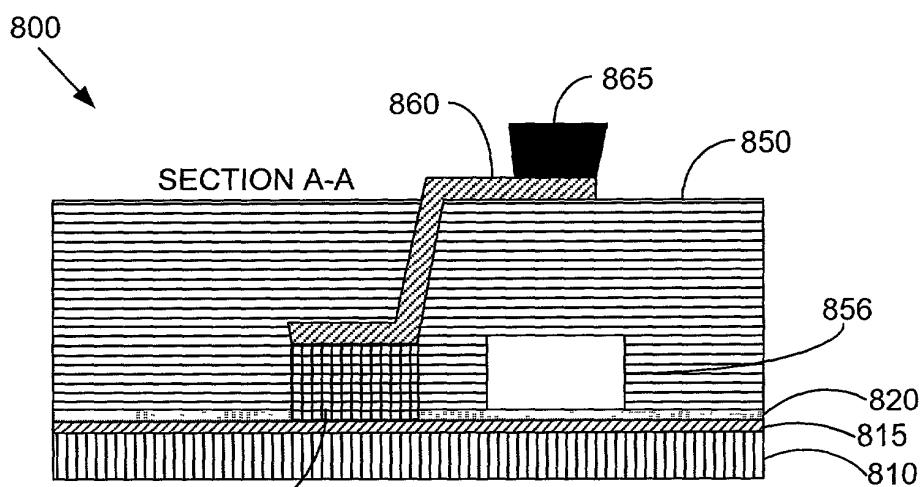


FIG. 22B

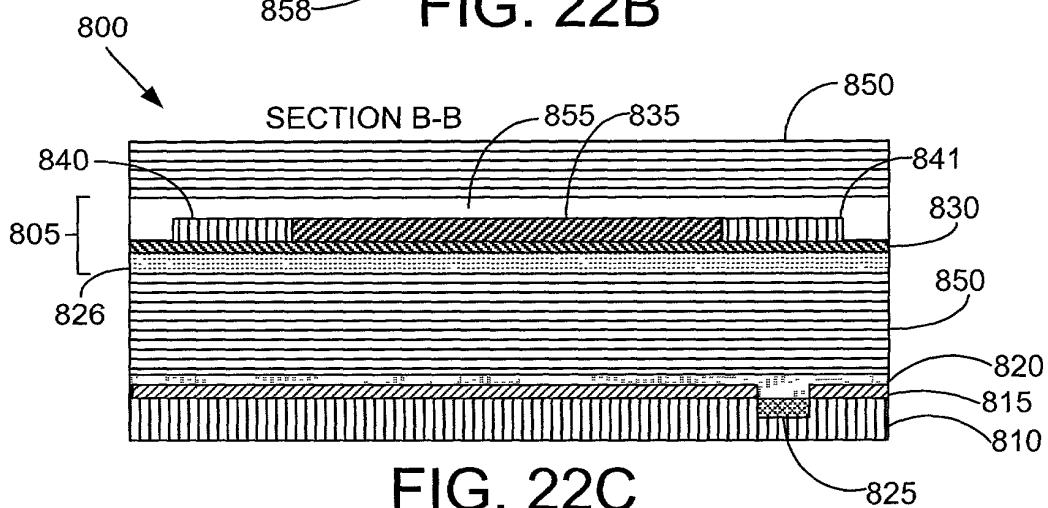




FIG. 23A

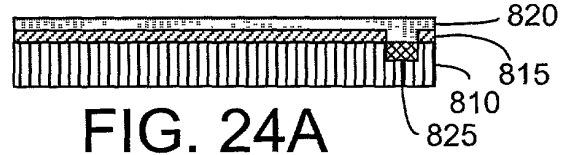


FIG. 24A
SECTION B-B

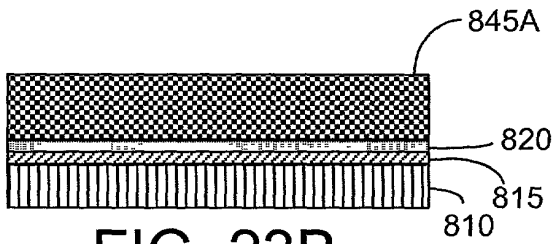


FIG. 23B

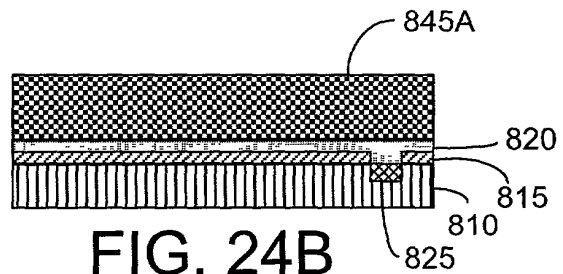


FIG. 24B
SECTION B-B

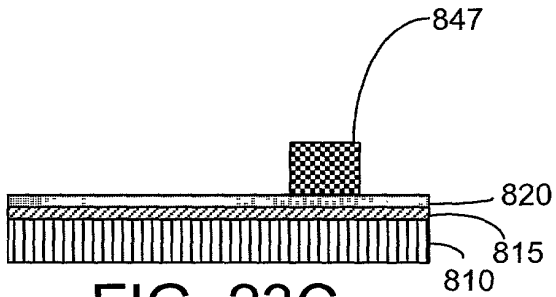


FIG. 23C

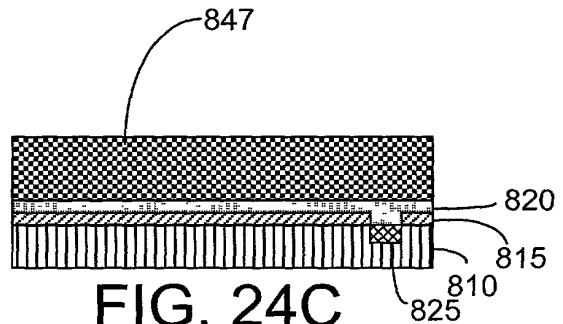


FIG. 24C
SECTION B-B

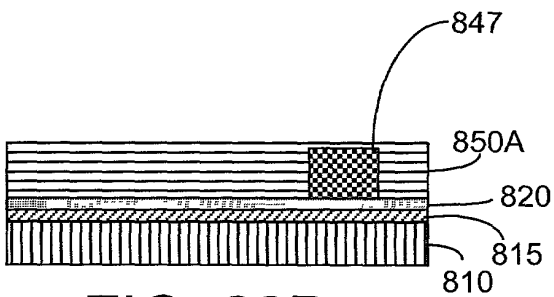


FIG. 23D

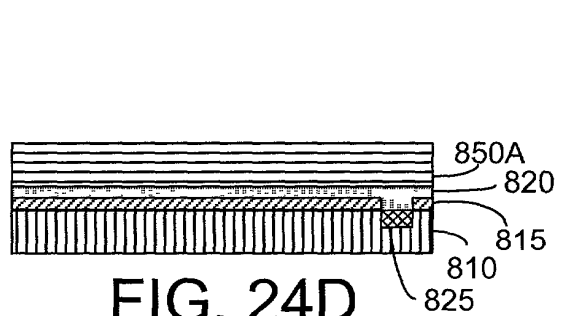


FIG. 24D
SECTION B-B

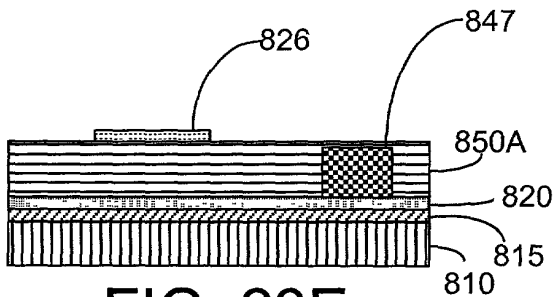


FIG. 23E

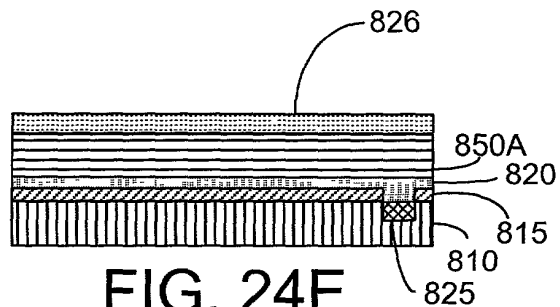


FIG. 24E
SECTION B-B

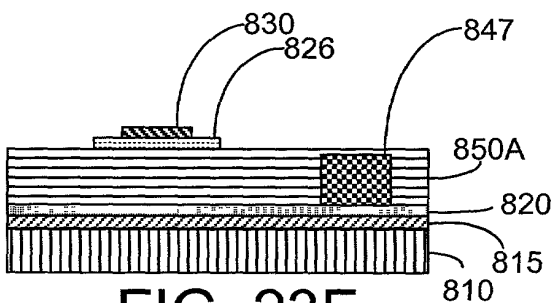


FIG. 23F

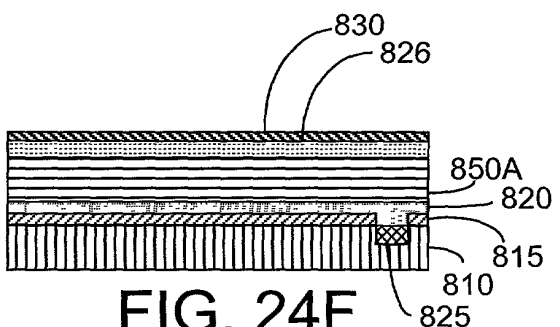


FIG. 24F
SECTION B-B

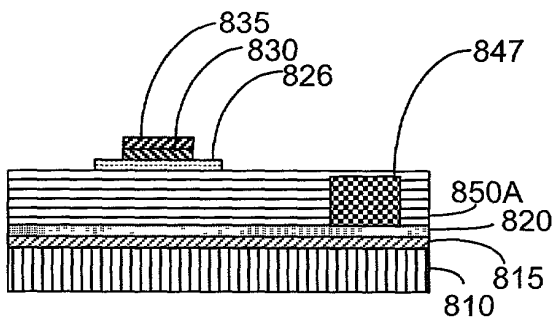


FIG. 23G

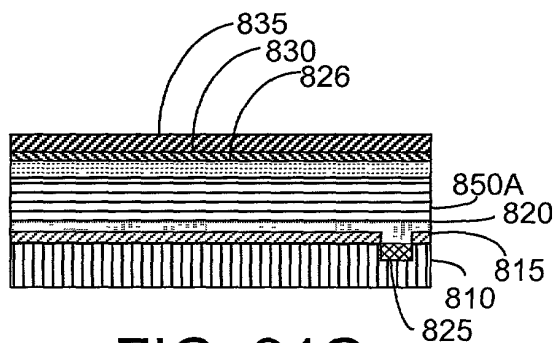


FIG. 24G
SECTION B-B

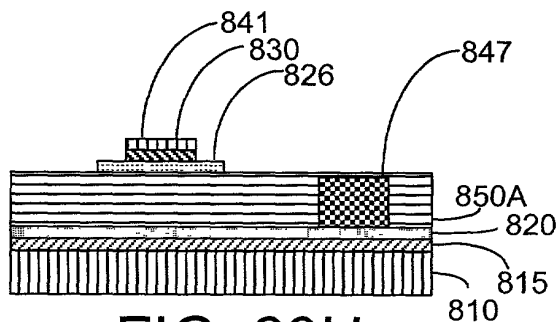


FIG. 23H

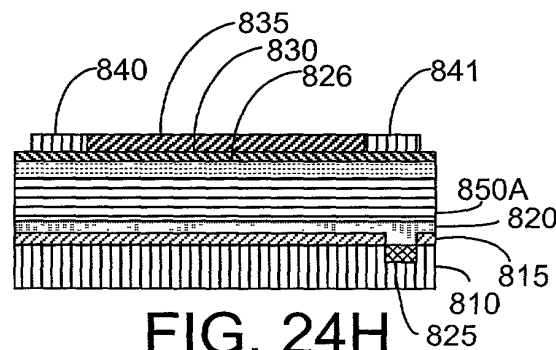


FIG. 24H
SECTION B-B

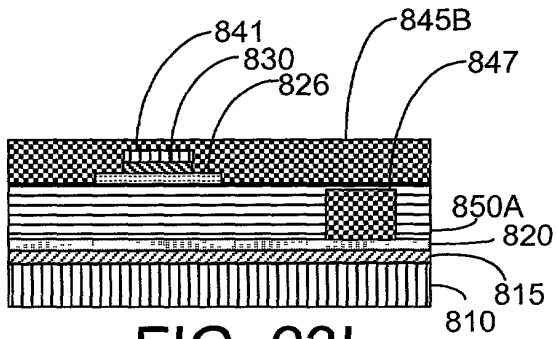


FIG. 23I

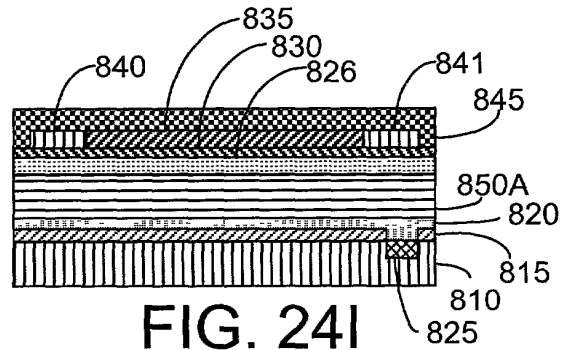


FIG. 24I

SECTION B-B

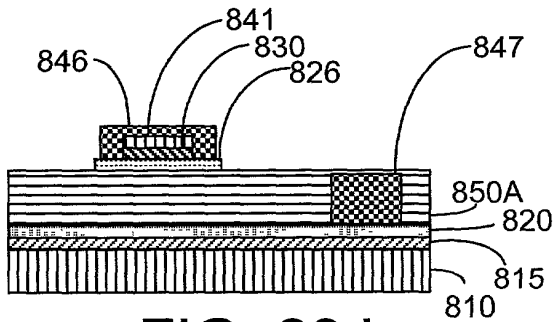


FIG. 23J

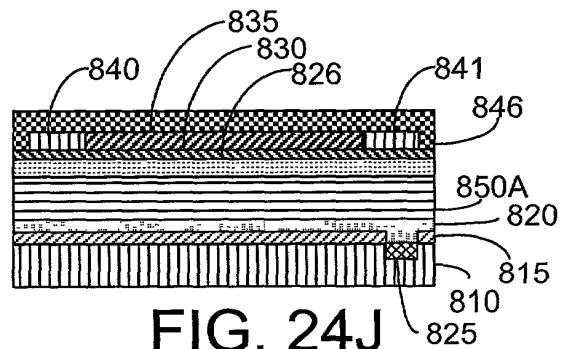


FIG. 24J

SECTION B-B

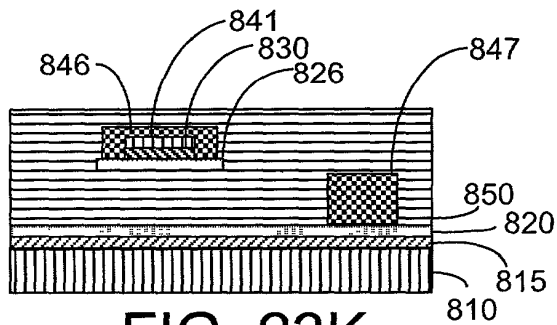


FIG. 23K

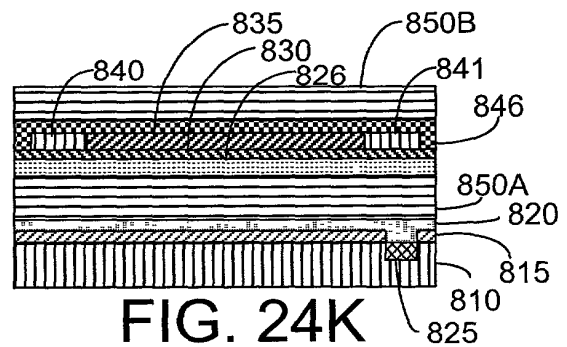


FIG. 24K

SECTION B-B

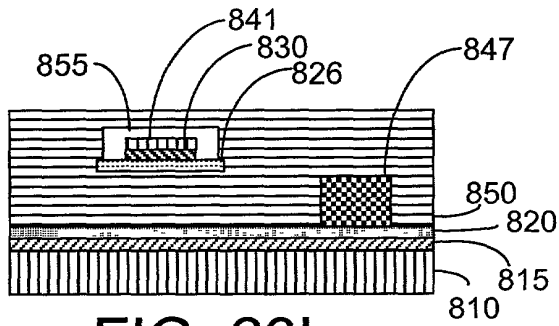


FIG. 23L

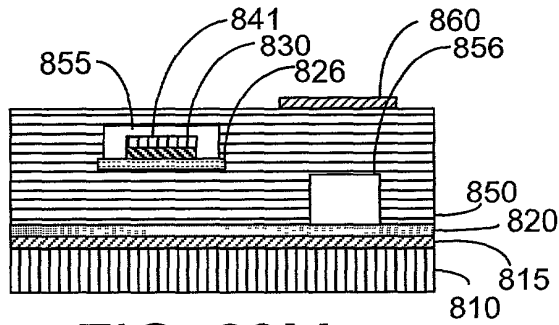


FIG. 23M

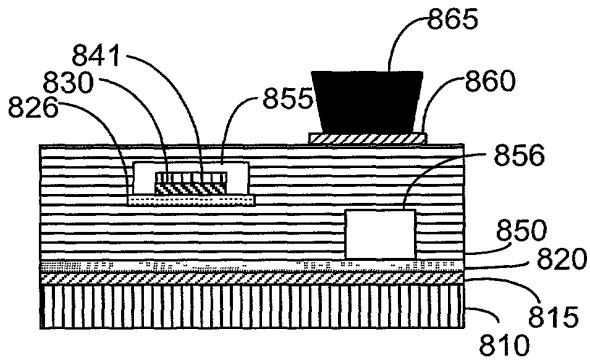


FIG. 23N

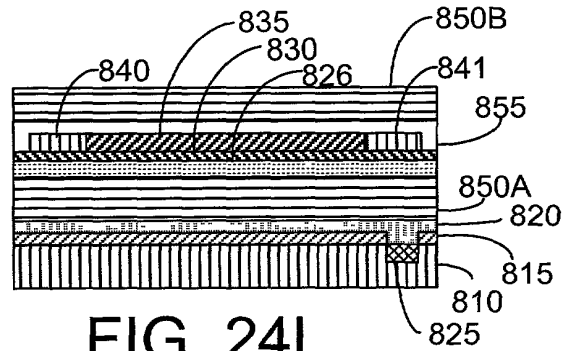


FIG. 24L

SECTION B-B

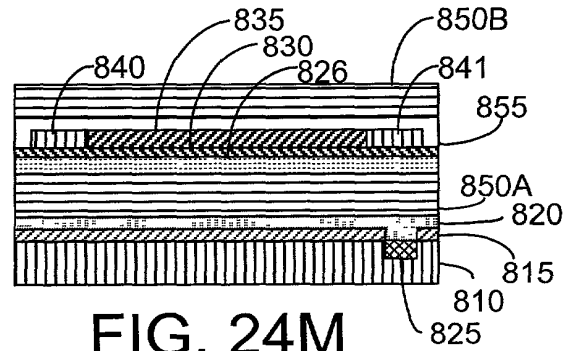


FIG. 24M

SECTION B-B

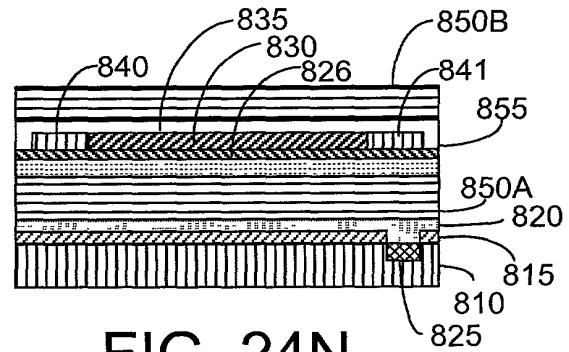


FIG. 24N

SECTION B-B